Draft
Site Hazard Assessment
Gorst Landfill
Gorst, Washington

HARTCROWSER
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1.0 INTRODUCTION

This report presents the results of a Site Hazard Assessment (SHA) for the Gorst Landfill (Bremerton Auto Wrecking Yard Landfill) located along State Route 3 SW near Gorst, Washington (Figure 1). The Washington State Department of Ecology (Ecology) SHA process is designed to provide sufficient sample analytical data and other information to evaluate potential environmental and public health hazards at specific sites. This information is then used by Ecology to rank the site according to the Washington Ranking Method (WARM). Investigations completed for the SHA included a survey of the physical boundaries and characteristics of the landfill property, and sampling and analysis to evaluate potential impacts from the landfill to surrounding environmental media. Hart Crowser completed this work for the Department of the Navy, Engineering Field Activities, Northwest (EFA, NW), under Contract No. N44255-98-D-4408, Delivery Order No. 12.

The body of this report describes the project objectives, current and historical land use, investigation observations and findings, conclusions, and recommendations. Appendix A provides a Title Report for the subject property ordered under this scope of work. Appendix B summarizes the field procedures and data collected during sampling. Appendix C presents the chemical data quality review and laboratory certificates of analysis for samples collected and analyzed for this SHA.

2.0 PROJECT OBJECTIVES

The objective of this project was to investigate the physical and chemical characteristics of the Gorst Landfill and surrounding area to determine potential impacts to other properties and environmental media. The investigation of physical features included a property boundary and elevations survey, limited landfill soil and slope stability assessment, and characterization of area hydrogeology. The environmental investigation was conducted to provide sufficient data and other information to complete a SHA for the Gorst Landfill in accordance with requirements of the Model Toxics Control Act (MTCA) (WAC 173-340-320). The information provided in the SHA will be used by Ecology to rank the site using WARM.

Hart Crowser completed the following tasks toward fulfillment of the stated project objectives.

Property Boundary and Topography Survey. Hart Crowser obtained a Title Report for the landfill property from Pacific Northwest Title, as provided in Appendix A. Using the Title Report and Kitsap County agency records, Bush, Roed, and Hitchings conducted a survey of the boundaries and topography of the landfill property, installed monuments for further reference points, and provided markers for establishing an existing easement for access to the landfill through a neighboring property. The survey data were converted into electronic Geographic Information System (GIS) files for the subject property. Electronic boundary and elevation plans were modified for use and reference in this document. Figure 2 provides a property boundary plan for the landfill site. Figure 3 illustrates physical features of the landfill property and surrounding area.

Soil and Slope Stability Assessment. Based on a history of landslides from the north face of the landfill, Hart Crowser conducted a limited soil and slope stability assessment to verify that proposed field activities could be safely executed and to determine the potential for future slides. The assessment included a review of site topography as provided by the Bush, Roed, and Hitchings survey and a one-day site investigation by Hart Crowser geotechnical engineers.

Hydrogeology Assessment. Hart Crowser conducted a limited review of area hydrogeologic conditions based on groundwater data for existing wells, area reports, and USGS records to characterize groundwater flow in the vicinity of the landfill.

Environmental Media Sampling and Analysis. Hart Crowser collected surface soil samples from the landfill mass, and surface soil, groundwater, surface water, and freshwater sediment samples from surrounding properties for chemical analysis. Samples were analyzed for various constituents based on historical information regarding the types of materials potentially present in the landfill.

Assessment of Impacts to Fisheries. Using data obtained from sampling and analysis of environmental media, Hart Crowser evaluated the potential for resource damage from the landfill, limited to impacts to a fish hatchery located downstream on Gorst Creek. The limited assessment consisted of an evaluation of sample analytical data and freshwater sediment and surface water quality standards, with a consideration of the location of the landfill relative to the fish hatchery.

3.0 CURRENT AND HISTORICAL LAND USE

3.1 Current Site Conditions

The Gorst Landfill is located approximately 1.5 miles west of Gorst, Washington, along the southeast side of State Highway 3 SW, as shown on Figure 1. The Kitsap County Tax Assessor identifies the landfill property as parcel 012301-4-022-1005, located in the NE 1/4 of the SE 1/4 of Section 1, Township 23 North, Range 1 West (WM) in Kitsap County, Washington. The property is further delineated in the Title Report provided in Appendix A, and on the Site Property Boundary Plan provided on Figure 2.

The landfill site has historically been associated with an auto wrecking yard listed at 4275 State Route 3 SW, Port Orchard, Washington. In 1989, a "Declaration of Property Line Adjustment" was filed in Kitsap County to separate the land containing the landfill property from the adjacent auto wrecking yard. As of that date, separate parties have owned the Gorst Landfill property and the adjacent auto wrecking yard. Vehicle access to the landfill property can only be obtained through the adjacent auto wrecking yard, Airport Auto Wrecking, Too. The 1989 property line adjustment created an easement through the auto wrecking yard, which may be cleared to provide access to the landfill for future site activities. The easement is labeled "Ingress, Egress & Utilities Easement, Rec. No. 883956," as illustrated on Figure 2.

The Gorst Landfill property is a triangular parcel centered over approximately 700 feet of the Gorst Creek ravine (See Figure 3). Gorst Creek is an intermittent stream flowing through a ravine that ranges between 60 and 80 feet deep over the length of the subject property. The creek ravine was first used as a landfill site in approximately 1968, at which time a concrete culvert was constructed to carry creek water through and under landfilled materials. Waste materials and soil cover were deposited in the ravine from 1968 until the landfill closed in the late 1980s. During the landfill operation, the culvert functioned adequately during dry periods and moderate rain events, but was incapable of handling large volumes of water during heavy rains.

Currently, the Gorst Creek ravine on the subject property contains an estimated 150,000 cubic yards of waste and soil cover. The top of the landfill is flush with the surrounding topography over much of the landfill mass, and is overgrown with small trees, blackberry bushes, and other vegetation. During severe rainfall events between January and February of 1997, water in the Gorst Creek ravine backed up behind the landfill mass and eventually spilled over the top and down the north face. The north face of the landfill mass slid, resulting in a release of soil and debris to Gorst Creek. In addition, the landfill slide left a steep and

unstable face with exposed debris on the north end of the landfill. The approximate slide area is illustrated on Figure 3. It is feared that future landfill slope failure could threaten State Route 3 SW, located less than 300 feet down slope of the north landfill face. The south face of the landfill appears to remain intact with a gradual slope. Exposed debris is visible on both the north and south faces of the landfill.

The Washington State Department of Transportation (WSDOT) owns the property directly north of the landfill site, which contains State Route 3 SW and an easement corridor on either side of the highway. After the landfill slide in 1997, WSDOT installed two riprap berms with corrugated metal pipes for drainage in the easement corridor between the landfill and the State Route, as illustrated on Figure 3. The berms were engineered to temporarily retain water and trap debris in the event of minor landfill slides.

3.2 Site History

The landfill in the Gorst Creek ravine was active from 1968 until the late 1980s. Based on historical research for the subject property, it appears that the landfill had three distinct generations of operation and ownership. The auto wrecking yard operation was started by three Bremerton-area businessmen in 1964 as Ames Auto Wrecking, Inc. The landfill operation, under the same name, began in April 1968 when the property owners began accepting public waste for disposal in the Gorst Creek ravine. Soon after, Ames Auto Wrecking, Inc. successfully underbid a competing disposal site for the Puget Sound Naval Shipyard (PSNS) refuse disposal contract for the period of July 1, 1969, through June 30, 1970. After the one-year PSNS contract expired, the Ames landfill continued to accept waste from public dumping and occasional demolition debris contracts.

The second generation of landfill operations began in 1973, when a new owner took over and renamed the site Bremerton Auto Wrecking, Inc. The second owner continued the public and demolition debris landfill operation until 1980, when he sold the property and operations to Mr. Sid Uhinck of Bremerton, Washington. After 1980, the landfill was permitted only for demolition debris, but continued to accept public waste. Mr. Uhinck passed away in 1985 and left the property and operations to his widow, the current property owner, Mrs. Lucille Uhinck. The landfill ceased operations in the late 1980s. In 1989, a "Declaration of Property Line Adjustment" was filed in Kitsap County to separate the land containing the landfill property from the adjacent auto wrecking yard (See Figure 2). In 1993, Lucille Uhinck sold the auto wrecking yard property, excluding the landfill portion, to Jerry Cross. Mr. Cross currently operates Airport Auto Wrecking, Too adjacent to the east side of the landfill.

4.0 INVESTIGATION OBSERVATIONS AND FINDINGS

4.1 Physical Investigations

4.1.1 Boundary and Elevations Survey

Under subcontract to Hart Crowser, Bush, Roed, and Hitching, Inc., conducted landfill property boundary and elevation surveys during September 1999. The boundary survey was based on Kitsap County Records and the Title Report for the property included as Appendix A of this report. The survey provided set boundary corners and identified easements, covenants, and restrictions, as presented in the Title Report. Based on a review of the boundaries of the landfill property, it appears that landfill debris and cover likely encroach on adjacent properties on all sides. Boundary survey data were recorded in a GIS-compatible electronic file. The file was modified for use in this report, as presented on Figure 2.

The elevation survey was conducted by recording spot elevations, where possible, along the perimeter of the site on or near property lines and along the top of the creek embankment. The Kitsap County vertical datum was used and on-site benchmarks were set. Spot elevation survey data were recorded in a GIS-compatible electronic file. The file was modified and contours were estimated for this report, as presented on Figure 3.

4.1.2 Limited Soil and Slope Stability Assessment

Hart Crowser conducted a limited soil and slope stability assessment of the landfill site and Gorst Creek ravine on September 16, 1999. Based on a reconnaissance of the landfill mass by geotechnical engineers, the following site conditions were noted.

There is evidence of debris flows and surface erosion near the northwest limits of the landfill waste. In this area, the underlying native soil material contains over-steepened slopes that are particularly susceptible to surface erosion and "blow-outs." The natural slopes along the sides of the ravine are estimated to be about 36° to 40° from horizontal. In general, the native ravine slopes appear to contain no evidence of deep-seated sliding or slumps.

Based on this reconnaissance, debris flows are primarily attributed to surface water erosion and groundwater seepage. At the time of the reconnaissance, the site was dry. However, there has been significant flow in the past, as evidenced by channel erosion, sediment deposition, site photographs, and historical

information about the site. Finally, if the buried culvert pipe running beneath the landfill mass is broken or truncated, this would further contribute to the instability of the landfill.

It appears that the over-steepened native slopes become less stable where they are exposed to surface water erosion. It also appears that a significant volume of surface water has infiltrated through the waste and traveled along the older native soil contact, following the buried channel. This water eventually reaches the exposed slopes in Gorst Creek ravine and aggravates the erosion of the over-steepened slopes. Unless the drainage behind the slope is improved, we expect continued slope movement and erosion of surficial materials during the wet seasons.

4.1.3 Area Hydrogeology Assessment

The surface geology of the area is glacially overridden, very dense, silty to very silty, gravelly sand (Vashon Till). The Vashon Till overlies most of the Sunnyslope Upland area, to a thickness of up to 50 feet. Beneath the till lie the water-bearing Vashon Advance Outwash sand and gravel deposits, ranging from 10 to 50 feet in thickness. In the vicinity of the creek drainages, including Gorst and Parish Creeks, the till is eroded to expose the Advance Outwash deposits (AGI, 1996).

An older till layer, ranging from 0 to 40 feet in thickness, is present in some areas beneath the Vashon Advance Outwash deposits. This older till layer is absent in places, allowing hydraulic connection between the Vashon Advance Outwash deposits and an older sand and gravel layer beneath, which can be 50 feet thick or more. The water-bearing sand and gravel units, including the Vashon Advance Outwash deposits and the older sand and gravel units, are called the Upland Aquifer (AGI, 1996).

Groundwater flow in this area of the Upland Aquifer is toward the northwest, where it merges with the Twin Lakes Aquifer within the Gorst Valley (AGI, 1996).

4.1.4 Site Surface Water and Groundwater Conditions

The site is located on the Sunnyslope Upland, in the Gorst Creek basin, with elevations ranging from approximately 350 to 420 feet above sea level. The landfill is situated in an approximately 700-foot-long reach of the Gorst Creek ravine. Gorst Creek flows seasonally beneath the landfill mass through a concrete pipe along the contact with the old channel bottom. The culvert is likely damaged or destroyed somewhere beneath the landfill. The Creek emerges again approximately 50 feet north of the toe of the landfill. Gorst

Creek flows at the surface for 200 to 300 feet before entering a 4-foot square box culvert that channels water under State Route 3 SW.

During periods of heavy rain, surface water accumulates in the ravine in quantities that cannot be adequately drained by the concrete pipe underlying the landfill. In these instances, surface water backs up behind the landfill. Site observations indicate that backed up surface water makes its way along the buried channel bottom, through the fill material, and/or overflows over the top of the landfill to emerge into the creek channel below the landfill.

In the vicinity of the site, the groundwater in the Upland Aquifer likely flows toward the Gorst Valley. The steep Gorst Creek ravine appears to cut into the Upland Aquifer, thereby gaining water from groundwater seepage from the slope faces. Since Gorst Creek appears to be a gaining stream through this steeply sloped area, it seems probable that little of the precipitation or surface water moving through the fill would move into the groundwater system at this location. Rather, the majority of this water likely moves off site with surface water flow in the Gorst Creek channel.

4.2 Environmental Investigations

Environmental sampling was conducted in accordance with methods provided with this report in Appendix B. Field observations and measurements recorded during sampling are provided in Table B of that appendix. Sample types and locations referenced in this report are illustrated on Figure 4. Analytical results are provided in Tables 1 through 6. Finally, data validation reports and certificates of analysis are provided in Appendix C.

4.2.1 Surface Soil Quality Observations and Findings

Surface Soil Sampling. Discrete surface soil samples were collected from surrounding ravine walls, with one upgradient background sample (GL-SS-01) and three samples (GL-SS-02, GL-SS-03, and GL-SS-04) collected immediately downgradient of the landfill. In addition, three composite surface soil samples were collected from exposed areas of the north face of the landfill. The composite samples were collected from three defined horizontal zones, the bottom (GL-SS-05), middle (GL-SS-06), and the top (GL-SS-07). A field duplicate surface soil sample, GL-SS-08, was collected with GL-SS-07. Field parameters recorded during surface soil sampling are provided in Table B-1. These parameters include sample ID, sample date, sample type, air monitoring data, sample depth, and soil types.

Each of the four ravine wall soil samples was collected from 0 to 0.5 foot below grade. In general, surface soils from ravine walls were characterized as moist, brown, slightly silty, gravelly sand with organics. No odors or visible indications of contamination, such as staining or stressed vegetation, were noted during sampling. Random debris from the landfill was noted along ravine walls both upgradient and downgradient of the landfill mass. Air monitoring data collected using a photoionization detector (PID) did not indicate the presence of volatile compounds in soils.

Each of the three landfill surface soil samples consisted of a four-point composite collected from 0 to 0.5 foot below grade. The surface soil samples collected directly from the north face of the landfill were characterized as moist, very gravelly, fine to medium sand with debris. The samples were collected from areas of the slope intermittent with exposed debris and soil cover. Air monitoring data collected using a PID did not indicate the presence of volatile compounds in soils.

Surface Soil Analytical Results. The following analyses were conducted for discrete and composite surface soil samples collected from the Gorst Landfill site.

- Total Petroleum Hydrocarbons as Gasoline (NW-TPHG);
- Total Petroleum Hydrocarbons as Diesel (NW-TPHD);
- Polychlorinated biphenyls (PCBs) and OC Pesticides (EPA Method 8081/8082);
- Priority Pollutant Metals (EPA Method 6010/7000 Series);
- Leachable Priority Pollutant Metals by TCLP (EPA Method 1311/6010/7000 Series);
- Volatile Organic Compounds (VOCs, CLP OLM01.8); and
- Semivolatile Organic Compounds (SVOCs, CLP OLM01.8).

Analytical results were compared against the MTCA Method A Cleanup Levels for Industrial Soil, where available. Where these criteria were not available, results were compared against MTCA Method C Cleanup Levels for Industrial Soil. Industrial criteria were selected for surface soils based on the industrial nature of land use in the area, including the landfill, adjacent auto wrecking yard, and State Highway. The landfill property is currently zoned as "Urban Reserve",

which is intended to cover properties located outside of an urban growth area in Kitsap County. The property conforms to the characteristics of an industrial property as defined in WAC 173-340-745, including:

- People do not live on the property;
- Access to the property by the general public is restricted;
- Food is not grown or raised on the property; and
- Landuse in the area is characterized by the landfill, auto wrecking, and heavy vehicle traffic along State Route 3.

For surface soils, industrial use represents the reasonable maximum exposure (RME).

Analytical results for surface soils are provided in Table 1 and are summarized as follows:

- For Total Petroleum Hydrocarbon (TPH) analysis, gasoline-range hydrocarbons were not detected at laboratory detection limits for any of the surface soil samples. Diesel- and motor oil-range hydrocarbons were detected at concentrations below MTCA Method A Industrial Soil Cleanup Levels for samples from ravine walls, but were not detected at laboratory detection limits for samples from the landfill face.
- PCBs and OC pesticides were either not detected at analytical laboratory detection limits or at concentrations well below MTCA Method A and Method C industrial criteria for the surface soil samples analyzed;
- Priority Pollutant Metals were not detected at analytical laboratory detection limits, or were present at concentrations well below Method A Industrial Cleanup Levels, where available, and below Method C Industrial Cleanup Levels;
- Leachable metals (TCLP) were not detected at analytical laboratory detection limits, or were well below Ecology criteria for hazardous waste designation provided in WAC 173-303. Although leachable metals concentrations (highly conservative by TCLP) were above some surface water quality criteria, the surface water quality data (discussed below) empirically demonstrate no metals impacts to Gorst Creek;

- VOCs were not detected at analytical laboratory detection limits for any of the surface soil samples; and

- SVOCs were not detected at analytical laboratory detection limits, or at concentrations well below Method C Industrial Cleanup Levels.

4.2.2 Freshwater Sediment Quality Observations and Findings

Freshwater Sediment Sampling. For freshwater sediment characterization, one sample (GL-SED-01) was collected upgradient and three samples (GL-SED-02, GL-SED-03, and GL-SED-04) were collected downgradient of the landfill mass. As described in Appendix B, sediment samples were collected from areas of active deposition. The sediment samples consisted of a five-point composite, with a center point and four radial points at 1-foot intervals from the center point. Field parameters recorded during freshwater sediment sampling are provided in Table B-2. These parameters include sample ID, sample date, air monitoring data, sample depth, and sediment types.

Each of the four freshwater sediment samples was collected from 0 to 0.2 foot below sediment grade. In general, sediments were sandy with some silt and gravel. No odors or visible indications of contamination were noted during sampling. Air monitoring data collected using a PID did not indicate the presence of volatile compounds in sediments.

Freshwater Sediment Analytical Results. The following analyses were conducted for freshwater sediment samples collected from the Gorst Landfill site.

- Total Petroleum Hydrocarbons as Gasoline (NW-TPHG);
- Total Petroleum Hydrocarbons as Diesel (NW-TPHD);
- PCBs and OC Pesticides (EPA Method 8081/8082);
- Priority Pollutant Metals (EPA Method 6010/7000 Series);
- Leachable Priority Pollutant Metals by TCLP (EPA Method 1311/6010/7000 Series);
- Volatile Organic Compounds (VOCs, CLP OLM01.8);
- Semivolatile Organic Compounds (SVOCs, CLP OLM01.8); and
- Total Organic Carbon (TOC).

Analytical results were compared to risk-based criteria, including Ecology Freshwater Sediment Quality Values (FSQVs) (Ecology, 1997) and EPA EcoTox Thresholds (EPA, 1996). For many analytes, no criteria are available for evaluation of freshwater sediment quality. Analytical results for freshwater

sediments are provided in Tables 2 and 5. The results are summarized as follows:

- EPA and Ecology freshwater sediment criteria are not available for petroleum hydrocarbons. None of the four sediment samples analyzed contained detectable concentrations of gasoline-range hydrocarbons based on analytical laboratory detection limits. In addition, diesel- and motor oil-range hydrocarbons were not detected at laboratory detection limits for sediment samples, with the exception of GL-SED-02. Sample GL-SED-02 contained 44 milligrams/kilogram (mg/kg) diesel-range hydrocarbons and 400 mg/kg heavy oil-range hydrocarbons. However, review of the chromotogram for this result indicates the TPH is present in GL-SED-02 as heavy oil only.

- For PCB and OC pesticide analyses, Ecology FSQV criteria are available for Aroclor 1248, Aroclor 1254, and Total PCBs. The EPA EcoTox criteria include a value for 4,4'-DDT. However, this value is actually derived from the NOAA Effects Range Low (ERL) criteria (Long et al., 1995). No additional Ecology or EPA freshwater criteria were available.

  For samples GL-SED-01, GL-SED-03, and GL-SED-04, analytes were not detected at analytical laboratory detection limits. The detection limits were above the screening criteria for the four compounds listed above. It should be noted that the reported detection limits for these compounds were at or below the Practical Quantitation Limit (PQL) (Ecology, 1993), indicating that the detection limits are the quantitative limits of the analytical method used.

  For sample GL-SED-02, 4,4'-DDT was detected at an estimated concentration of 0.012 mg/kg, above the EcoTox Threshold of 0.0016 mg/kg. The elevated 4,4'-DDT concentration at this location is likely related to the higher silt content and organic carbon present in this sample when compared to the remaining sediment samples. As stated in an EPA ECO update memorandum (EPA, 1996), there is relatively low correlation between incidence of effects and the criteria concentration of DDT. The published EcoTox Threshold should be used cautiously (Long et al., 1995).

- The four sediment samples were analyzed for priority pollutant metals. Ecology FSQV criteria are available for the metal analytes, with the exception of antimony, beryllium, nickel, selenium, and thallium. None of the samples contained concentrations of metals above applicable FSQV criteria, where available.

- Analysis of the four sediment samples for TCLP metals indicated leachable metal concentrations below analytical laboratory detection limits, or at low

concentrations just above the detection limits. The leachable lead concentration (highly conservative by TCLP) measured in sample GL-SED-02 was above the surface water quality criteria; however, the surface water quality data (discussed below) empirically demonstrate no metals impacts to Gorst Creek.

- Ecology and EPA criteria are not available for VOCs in freshwater sediments. VOCs were not detected at analytical laboratory detection limits for any of the freshwater sediment samples analyzed.

- For SVOCs, FSQV and EcoTox criteria are available for some analytes. SVOC concentrations were either not detected or were below the available screening criteria. For two analytes (carbazole and Dibenz(a,h)anthracene), the laboratory method detection limit was higher than the screening criteria. Detectable concentrations of SVOCs (estimated concentrations below laboratory reporting limits) were limited to location GL-SED-02.

4.2.3 Groundwater Quality Observations and Findings

Groundwater Sampling. Groundwater was assessed using existing Bremerton Water District (BWD) monitoring well BR-11 located north of the landfill property on the opposite side of State Route 3 SW. Well BR-11 was originally installed in 1992 to provide background data for a biosolids land application project conducted by the City of Bremerton. The well was selected for sampling and analysis for this project based on its downgradient/cross-gradient location relative to the subject property. The location of the well is indicated on Figure 1.

Hart Crowser sampled the well on January 14, 2000, with observation by BWD staff. Sample GL-GW-BR11 was collected, along with a quality control field duplicate sample GL-GW-BR12. Field parameters collected during groundwater sampling are provided in Table B-3. These parameters include sample ID, sample date, depth to groundwater, depth to sediment, purge volume, temperature, and pH.

The groundwater level was 57.57 feet below the top of the well casing at the time of sampling, with depth to sediment at 73.7 feet below the top of the casing. Approximately 8 gallons of water were purged before water parameters stabilized. When sampled, well water was approximately 9 degrees Celsius, with a pH of 7.0. No odors, sheen, or other visible indications of contamination were noted during sampling.

Groundwater Analytical Results. The following analyses were conducted for groundwater samples collected from Well BR-11.

- PCBs (EPA Method 8082);
- Total and Dissolved Priority Pollutant Metals (6010/7000 Series);
- Volatile Organic Compounds (VOCs, CLP OLM01.8);
- Semivolatile Organic Compounds (SVOCs, CLP OLM01.8); and
- Total Suspended Solids (TSS, EPA Method 160.2);

Analytical results were compared against MTCA Method A and Method B groundwater cleanup levels, where available. Analytical results for groundwater are provided in Tables 4 and 5. The results are summarized as follows:

- Groundwater sample results were below analytical laboratory detection limits for total PCBs. MTCA Method B groundwater criteria for PCBs are below laboratory detection limits. It should be noted that the reported detection limits for these compounds were at or below the Ecology PQL (Ecology, 1993), indicating that the detection limits are the quantitative limits of the analytical method used.

- Groundwater sample results for priority pollutant metals were below analytical laboratory detection limits. The MTCA Method B groundwater criteria for antimony, arsenic, beryllium, and thallium are below laboratory detection limits. With the exception of antimony and beryllium, the detection limits met the reporting limit goals as specified in the project QAPP (Hart Crowser, 1999).

- VOCs were not detected at analytical laboratory detection limits for groundwater samples. Since CLP methodologies were used for this analysis, several compound detection limits were above available groundwater criteria. However, the detection limits met the reporting limit goals as specified in the project QAPP (Hart Crowser, 1999).

- SVOCs were not detected at analytical laboratory detection limits for groundwater samples. Since CLP methodologies were used for this analysis, several compound detection limits were above available groundwater criteria. However, the detection limits met the reporting limit goals as specified in the project QAPP (Hart Crowser, 1999).

4.2.4 Surface Water Quality Observations and Findings

For the Gorst Creek surface water quality characterization, one sample (GL-SW-01) was collected upgradient of the landfill mass and one sample (GL-SW-02) was collected downgradient of the landfill mass. As described in Appendix B, each surface water sample was collocated with a freshwater

sediment sample from an area of active sediment deposition (GL-SW-01 collocated with GL-SED-01; GL-SW-02 collocated with GL-SED-03). Surface water samples were collected prior to freshwater sediment sampling in each case to minimize turbidity in the surface water sample and to avoid disturbing sediments to be sampled. Field parameters recorded during surface water sampling are provided in Table B-4. These parameters include sample ID, sample date, sample depth, temperature, pH, dissolved oxygen, and conductivity.

Water samples were collected from approximately 0.3 foot below water surface for GL-SW-01, and from 0.6 foot below water surface in GL-SW-02. No odors, sheens, or other visible indications of contamination were noted during sampling.

Surface Water Analytical Results. The following analyses were conducted for surface water samples collected from Gorst Creek.

- PCBs (EPA Method 8082);
- Total and Dissolved Priority Pollutant Metals (6010/7000 Series);
- Volatile Organic Compounds (VOCs, CLP OLM01.8);
- Semivolatile Organic Compounds (SVOCs, CLP OLM01.8);
- Total Suspended Solids (TSS, EPA Method 160.2);
- Hardness (EPA Method 6010);
- Cations (Ca, Fe, Mg, Mn, K, and Na, EPA Method 6010); and
- Anions (Cl, NO_3, SO_4, carbonate alkalinity, bicarbonate alkalinity, EPA Method 300.0).

Analytical results were compared against MTCA Method B Surface Water criteria and/or Water Quality Standards for Surface Waters of the State of Washington (Chapter 173-201A WAC). For many analytes, no criteria are available for evaluation of surface water quality. Analytical results for surface water are provided in Tables 4, 5, and 6. The results are summarized as follows:

- Both surface water sample results were below analytical laboratory detection limits for total PCBs. Available surface water criteria for PCBs are below laboratory detection limits. It should be noted that the reported detection limits for these compounds were at or below the PQL (Ecology, 1993), indicating that the detection limits are the quantitative limits of the analytical method used.

- Surface water sample results for priority pollutant metals were at or below analytical laboratory detection limits. Detection limits for several metals were above at least one of the surface water criteria.

- VOCs were not detected at analytical laboratory detection limits for either surface water sample. Since CLP methodologies were used for this analysis, several compound detection limits were above available criteria. However, the detection limits met the reporting limit goals as specified in the project QAPP (Hart Crowser, 1999).

- SVOCs were not detected at analytical laboratory detection limits for either surface water sample. Since CLP methodologies were used for this analysis, several compound detection limits were above available criteria. However, the detection limits met the reporting limit goals as specified in the project QAPP (Hart Crowser, 1999).

- Surface water samples were analyzed for major ion distributions to determine if water flowing in Gorst Creek upgradient of the landfill is geochemically similar to the water emerging from beneath the landfill downgradient of the fill. Differences in the major ions in the samples might indicate contributions to the creek from water percolating through the landfill, infiltration of groundwater into the landfill, or a breach in the culvert carrying water under the landfill.

  The major ion distributions in the two surface water samples were analyzed using Piper and Stiff diagrams. Figure 5 provides a geochemical comparison of surface water samples using a Piper diagram. Figure 6 provides a geochemical comparison of surface water samples using a Stiff diagram. Water samples are considered similar if ion concentrations plot on the diagrams in generally the same locations. Analysis of the diagrams indicate that the ion distributions of the two surface water samples are very similar, with the exception of higher levels of calcium in GL-SW-02 as compared to GL-SW-01. An increase in calcium as surface water passes through the landfill may be attributed to calcium leaching from the concrete culvert pipe, or may indicate a breach in the culvert, with the added calcium coming from concrete demolition debris present in the landfill. In general, there is no major difference between creek water quality upstream and downstream of the landfill.

- The pH of Gorst Creek surface water upgradient and downgradient of the landfill mass was above the 8.5 limit provided in Water Quality Standards for Surface Waters of the State of Washington (Chapter 173-201A WAC). At the time of sampling, the pH at GL-SW-01 was 9.9; at GL-SW-02 the pH was 9.0.

4.3 Screening Level Assessment of Risk to Fish

Hart Crowser conducted a screening level assessment of sediment and surface water quality immediately upgradient and downgradient of the Gorst Landfill. The purpose of the limited assessment was to determine whether constituents from the landfill present a risk to the Suquamish Salmon Rearing Facility and Restoration Area (fish hatchery) located approximately 2.5 to 3 miles downstream of the landfill (Figure 1). The exposure pathway from the landfill to the fish hatchery is assumed to be limited to the leaching of constituents from the landfill mass and migration to the fish hatchery via surface water and/or sediment transport. Assuming this exposure pathway, the assessment was limited to an evaluation of sediment and surface water quality.

To evaluate potential risks, the sediment and surface water data were compared to risk-based screening levels to determine if constituents detected were present at levels of concern for ecological receptors. The sediment and surface water screening levels that were used in this assessment are presented below.

Sediment Screening Levels:

- Washington State Freshwater Sediment Quality Values (FSQV) (Ecology, 1997); and

- EcoTox Thresholds (EPA, 1996) including Sediment Quality Criteria, Sediment Quality Benchmarks, and NOAA's Sediment Guidelines (ERL).

Surface Water Screening Levels:

- Chronic Freshwater Ambient Water Quality Criteria, (EPA, 1999) and

- EcoTox Thresholds, Freshwater Tier II Criteria (EPA, 1996).

The analytical results and risk-based screening of sediment and surface water data are presented in Tables 2 and 4, respectively. As shown in the tables, the only compound that was detected in sediments at concentrations exceeding its respective screening criterion was 4,4'-DDT. 4,4'-DDT was detected at an estimated concentration of 0.012 mg/kg in sample GL-SED-02, but was not detected in samples GL-SED-03 or GL-SED-04, both located between GL-SED-02 and the landfill. Therefore, the magnitude of the 4,4'DDT detection is small (and uncertain given the data qualifier), and the areal extent in sediment is limited.

Surface water samples were collected from the creek channel upgradient (GL-SW-01) and downgradient (GL-SW-02) of the landfill mass. No compounds

were detected in either surface water sample, with the exception of total mercury detected at the 0.2 ug/L detection limit in sample GL-SW-01. Dissolved mercury was not detected in either sample. Therefore, the assessment was limited to an evaluation of the detection limits for each compound. As shown in the tables, the detection limits used were acceptable except for total PCBs, five SVOCs, and three metals. None of these compounds were detected in sediment samples above its respective sediment screening criterion, indicating that these are not compounds of concern.

5.0 CONCLUSIONS

5.1 Physical Features

The boundary survey clarified the extent of the landfill property currently owned by Ms. Lucille Uhinck. Based on the property boundary survey and on subsequent site investigations, it appears that landfill debris is not contained by the limits of the property boundary, and likely encroaches on surrounding properties. The elevations survey provided a better understanding of site topography and identified former landfill slide areas.

Based on the limited soil and landfill slope stability assessment, it appears that the over-steepened native slopes become less stable where they are exposed to surface water erosion. It also appears that a significant volume of surface water has infiltrated through the waste and traveled along the older native soil contact, following the buried channel. This water eventually reaches the exposed slopes in Gorst Creek ravine and aggravates the erosion of the over-steepened slopes. In addition, surface water accumulation and migration over the top of the landfill appears likely to occur again during periods of significant precipitation. Unless the drainage behind the slope is improved, continued slope movement and erosion of surficial materials during wet seasons is likely.

Based on a limited review of area hydrogeology, it appears that groundwater flows generally in the direction of the Gorst Valley, toward Sinclair Inlet to the northeast. Similarly, surface water flows through the Gorst Creek ravine through the subject property to the northeast, eventually emptying into Sinclair Inlet. Information reviewed for this report indicates that Gorst Creek is a "gaining" creek on and downgradient of the subject property. This means that groundwater would more likely contribute to surface water flow in Gorst Creek, instead of surface waters moving into and affecting groundwater. Based on this assessment, it appears unlikely that surface water flowing through the landfill would adversely impact groundwater downgradient of the site. In addition, it appears that the BWD monitoring well BR-11 sampled during this project is

located in a cross-gradient position relative to the landfill mass. Groundwater in the immediate vicinity of BR-11 is not likely impacted by the landfill.

5.2 Environmental Media

5.2.1 Sampling and Analysis

Based on the sampling and analysis activities conducted for this project, it appears that landfill activities have had a minimal impact on site and area environmental media.

- Surface soils from the ravine walls upgradient and downgradient of the landfill mass, and surface soils from the north face of the landfill, do not contain constituents of concern in excess of regulatory criteria for industrial properties. The sampling protocol for this project did not address soils located at depth in the landfill.

- Using Ecology and EPA ecological risk-based criteria for freshwater sediments, it appears that the upgradient sample (GL-SED-01) and two downgradient samples (GL-SED-03 and GL-SED-04) did not exceed available criteria for constituents of concern. One sample, GL-SED-02 contains 4,4'-DDT at a concentration above NOAA Effects Range Low (ERL) criteria for marine and freshwater sediments (Long et al., 1995). It should be noted that a relatively low correlation has been found between incidence of effects and the criteria concentration of DDT. The reference document notes that these criteria should be used cautiously.

- Groundwater was collected from BWD Well BR-11 located north of the landfill, as illustrated on Figure 1. Analytical results did not detect constituents in groundwater based on laboratory detection limits, with the exception of a low-level detection of methylene chloride below MTCA Method B criteria in the field duplicate GL-GW-BR12. Methylene chloride is a common laboratory contaminant (EPA, 1994). Based on the limited hydrogeologic assessment for the area conducted for this project, it does not appear that groundwater in the vicinity of Well BR-11 would be impacted by activities on the landfill property.

- Analytical results for surface water did not reveal exceedences of available criteria.

  The assessment of geochemical characteristics of surface water upgradient and downgradient of the landfill mass shows an increase in calcium as surface water passes through the landfill. The increase in calcium may be

attributed to calcium leaching out of the culvert pipe, or may indicate a breach in the culvert pipe with calcium leaching from concrete demolition debris deposited in the landfill.

Finally, at the time of sampling, measured pH in surface water upgradient and downgradient of the landfill was greater than the 8.5 limit provided in Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A). The cause of the elevated pH in Gorst Creek is undetermined as of this writing. Because the elevated pH was present upgradient and downgradient of the landfill mass, it is not likely related to constituents of the landfill.

5.2.2 Screening-Level Assessment of Risk to Fish

Based on the sediment and surface water results, it does not appear that targeted constituents are leaching or being transported from the landfill at concentrations that would be a concern to the fish hatchery located 2.5 to 3 miles downgradient of the landfill. Compounds exceeding the conservative sediment screening criteria were localized to a single downgradient sediment sample. No compounds of concern were detected in the downgradient surface water sample collected. No adverse impacts to the fish hatchery are predicted based on the results of this screening level evaluation.

6.0 RECOMMENDATIONS

Based on the assessment of physical features of the landfill, it appears that the landfill mass and ravine contain over-steepened and unstable slopes. In addition, the culvert designed to drain surface water from the south side of the landfill mass may not be intact, and is insufficient to handle the volume of water reaching the landfill during significant or sustained rain events. Once the culvert reaches capacity, surface water flows through the landfill/native surface contact, percolates through the landfill, or eventually accumulates to the point where it washes over the top of the landfill and down the north face. Based on this information, there is a high potential for slope failure during future rain events. Slope failures may release soils and debris to Gorst Creek, creating the potential for potential site contaminants not detected during this survey to enter the surface water and sediment system.

Hart Crowser recommends an engineered solution to stabilize the landfill mass and contain or cap surface soils. The solution will require a surface water drainage design to divert surface water through, over, or around the capped

landfill. The design must have sufficient capacity to handle the volume of storm water characteristic of the region.

Sampling and analysis of environmental media did not reveal a significant impact to the site or surrounding properties from landfill operations. The assessment included exposure routes via surface soils, freshwater sediment, groundwater, and surface water. The limited assessment of potential impacts to a downgradient fish hatchery did not reveal constituents at or concentrations of concern in surface water or freshwater sediment immediately downgradient of the landfill. No actions are needed with respect to protecting downstream receptors, other than the physical stabilization recommendation above.

Because MTCA Method C Industrial criteria were applied to analytical results for surface soils from the landfill and Gorst Creek ravine upgradient of State Route 3 SW, it is essential that the landfill site and ravine immediately surrounding the landfill remain industrial in nature. Recommended institutional controls for the site include landuse restrictions on future residential development and farming. Should land use change in the future, the analytical results provided in this report must be reevaluated in consideration of the new use.

7.0 LIMITATIONS

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of EFA, NW for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

Sincerely,

HART CROWSER, INC.

ELISABETH M. BLACK
Project Manager

MATTHEW F. SCHULTZ
Contract Manager

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8.0 REFERENCES

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Table 1 - Analytical Results for Surface Soil Samples
Gorst Landfill
Gorst, Washington

Table 1a - TPH

Sample ID Sample Date		GL-SS-01 1/10/2000	GL-SS-02 1/10/2000	GL-SS-03 1/10/2000	GL-SS-04 1/10/2000	GL-SS-05 1/10/2000	GL-SS-06 1/10/2000	GL-SS-07 1/10/2000	GL-SS-08 1/10/2000
TPH in mg/kg	MTCA Method A-Industrial								Field Duplicate of GL-SS-07
Gasoline (Toluene-C12)	100	6.7 U	5.9 U	5.9 U	5.6 U	5.4 U	6.1 U	6 U	6 U
Diesel (C12-C24)	200	14	14	64	26	11 U	12 U	12 U	12 U
Motor Oil (C24-C34)	200	130	110	190	140	44 U	49 U	48 U	48 U

U Not detected at indicated detection limit.

Table 1 - Analytical Results for Surface Soil Samples
Gorst Landfill
Gorst, Washington

Table 1b - PCBs and Pesticides

Sample ID Sample Date			GL-SS-01 1/10/2000	GL-SS-02 1/10/2000	GL-SS-03 1/10/2000	GL-SS-04 1/10/2000	GL-SS-05 1/10/2000	GL-SS-06 1/10/2000	GL-SS-07 1/10/2000	GL-SS-08 1/10/2000
PCBs/Pesticides in mg/kg	MTCA Method A-Industrial	MTCA Method C-Industrial								Field Duplicate of GL-SS-07
Aroclor 1016		245	0.044 U	0.039 U	0.039 U	0.038 U	0.036 U	0.04 U	0.04 U	0.04 U
Aroclor 1221			0.044 U	0.039 U	0.039 U	0.038 U	0.036 U	0.04 U	0.04 U	0.04 U
Aroclor 1232			0.044 U	0.039 U	0.039 U	0.038 U	0.036 U	0.04 U	0.04 U	0.04 U
Aroclor 1242			0.044 U	0.039 U	0.039 U	0.038 U	0.036 U	0.04 U	0.04 U	0.04 U
Aroclor 1248			0.044 U	0.039 U	0.23	0.44	0.036 U	0.04 U	0.04 U	0.04 U
Aroclor 1254		70	0.044 U	0.039 U	0.039 U	0.038 U	0.14	0.04 U	0.04 U	0.04 U
Aroclor 1260			0.044 U	0.042	0.14	0.12	0.036 U	0.04 U	0.04 U	0.04 U
Total Aroclors	10	17	0.044 U	0.042	0.37	0.56	0.14	0.04 U	0.04 U	0.04 U
4,4'-DDD		547	0.0044 U	0.004 U	0.004 U	0.037 J	0.0036 U	0.004 U	0.004 U	0.004 U
4,4'-DDE		386	0.0044 U	0.004 U	0.016 J	0.026 J	0.03 J	0.004 U	0.004 U	0.004 U
4,4'-DDT	5	386	0.0044 U	0.015 J	0.03 J	0.04 J	0.058	0.004 U	0.004 U	0.004 U
Aldrin		7.72	0.0022 U	0.002 U	0.002 U	0.0019 U	0.0018 U	0.002 U	0.002 U	0.002 U
Alpha-BHC		20.8	0.0022 U	0.002 U	0.002 U	0.0019 U	0.0018 U	0.002 U	0.002 U	0.002 U
Alpha-Chlordane			0.0022 U	0.011 J	0.002 U	0.0019 U	0.0018 U	0.002 U	0.002 U	0.002 U
Beta-BHC		72.9	0.0022 U	0.002 U	0.002 U	0.0019 U	0.0018 U	0.002 U	0.002 U	0.002 U
Delta-BHC			0.0022 U	0.002 U	0.002 U	0.0019 U	0.0018 U	0.002 U	0.002 U	0.002 U
Dieldrin		8.2	0.0044 U	0.004 U	0.017	0.029 J	0.038 J	0.004 U	0.004 U	0.004 U
Endosulfan I			0.0022 U	0.002 U	0.002 U	0.0019 U	0.01 J	0.002 U	0.002 U	0.002 U
Endosulfan II			0.0044 U	0.004 U	0.004 U	0.0038 U	0.0095 J	0.004 U	0.004 U	0.004 U
Endosulfan Sulfate			0.0044 U	0.009	0.004 U	0.0038 U	0.0036 U	0.004 U	0.004 U	0.004 U
Endrin		1,050	0.0044 U	0.004 U	0.004 U	0.0038 U	0.0077 J	0.004 U	0.004 U	0.004 U
Endrin Aldehyde			0.0044 U	0.004 U	0.004 U	0.0038 U	0.0036 U	0.004 U	0.004 U	0.004 U
Endrin Ketone			0.0044 U	0.004 U	0.005	0.0038 U	0.0036 U	0.004 U	0.004 U	0.004 U
Gamma-BHC	20	101	0.0022 U	0.002 U	0.002 U	0.0019 U	0.0018 U	0.002 U	0.002 U	0.002 U
Gamma-Chlordane			0.0022 U	0.008	0.009 J	0.015 J	0.02 J	0.002 U	0.002 U	0.002 U
Heptachlor		29	0.0022 U	0.002 U	0.002 U	0.0019 U	0.0018 U	0.002 U	0.002 U	0.002 U
Heptachlor Epoxide		14.4	0.0022 U	0.002 U	0.007 J	0.0019 U	0.0087 J	0.002 U	0.002 U	0.002 U
Methoxychlor		17,500	0.022 U	0.020 U	0.02 U	0.019 U	0.018 U	0.02 U	0.02 U	0.02 U
Toxaphene		119	0.044 U	0.039 U	0.039 U	0.038 U	0.036 U	0.04 U	0.04 U	0.04 U

U Not detected at indicated detection limit.

J Estimated value.

Table 1 - Analytical Results for Surface Soil Samples
Gorst Landfill
Gorst, Washington

Table 1c - Priority Pollutant Metals

Sample ID Sample Date			GL-SS-01 1/10/2000	GL-SS-02 1/10/2000	GL-SS-03 1/10/2000	GL-SS-04 1/10/2000	GL-SS-05 1/10/2000	GL-SS-06 1/10/2000	GL-SS-07 1/10/2000	GL-SS-08 1/10/2000
Metals in mg/kg	MTCA Method A - Industrial	MTCA Method C - Industrial								Field Duplicate of GL-SS-07
Antimony		1,400	3.6 U	3.0 U	5.9	3.1 U	4.7	3.2 U	3.3 U	3.2 U
Arsenic	200	219	2.3	5.2	1.7	1.2	0.91	1.6	1.6	1.4
Beryllium		30.5	0.36 U	0.3 U	0.32 U	0.31 U	0.3 U	0.32 U	0.33 U	0.32 U
Cadmium	10	3,500	0.36 U	1	0.83	0.31 U	0.3 U	0.32 U	0.33 U	0.32 U
Chromium	500		23	28	30.3	25.2	22.4	19	27.9	19.8
Copper		130,000	12.5	34.1	64.8	30.7	22.3	10	13	11.7
Lead	1,000		10	235	57.9	32.8	17.8	12.7	16.3	10.6
Mercury	1	1,050	0.045 U	0.1	0.25	0.094	0.046	0.046 U	0.047 U	0.049 U
Nickel		70,000	32.1	35.7	44	28.5	34.3	24.4	35.4	32.1
Selenium		17,500	1.8 UJ	1.6 UJ	1.6 UJ	1.4 UJ	1.5 UJ	1.6 UJ	1.6 UJ	1.5 UJ
Silver		17,500	0.73 U	0.59 U	0.64 U	0.61 U	0.59 U	0.65 U	0.66 U	0.64 U
Thallium		245.0	0.36 U	0.32 U	0.32 U	0.28 U	0.29 U	0.32 U	0.31 U	0.31 U
Zinc		1,050,000	31.5	178	235	105	77.4	27.7	44.5	40.3

U Not detected at indicated detection limit.
J Estimated value.

Table 1 - Analytical Results for Surface Soil Samples
Gorst Landfill
Gorst, Washington

Table 1d - TCLP Metals

Sample ID		GL-SS-01	GL-SS-02	GL-SS-03	GL-SS-04	GL-SS-05	GL-SS-06	GL-SS-07	GL-SS-08
Sample Date		1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000
Metals in ug/L	EPA Criteria								Field Duplicate
Antimony		50 U	50 U	50 U	50 U	50 U	50 U	50.0 U	50.0 U
Arsenic	5,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Beryllium		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cadmium	1,000	5 U	9.5	10.9	5.9	5 U	5 U	5 U	5 U
Chromium	5,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Copper	5,000	10 U	16.6 U	170 U	69.1 U	40.7 U	10 U	10 U	10 U
Lead	5,000	30 U	437	64.4	43.2	49.1	30 U	30 U	30 U
Mercury	200	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Nickel	5,000	10 U	10 U	44.6	24.4	16.4	10 U	10 U	10 U
Selenium	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Silver	5,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Thallium		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Zinc	5,000	150 U	812	1,670	765	540	176 U	170 U	148 U

U Not detected at indicated detection limit.

Table 1 - Analytical Results for Surface Soil Samples
Gorst Landfill
Gorst, Washington

Table 1e - Volatile Organic Compounds

Sample ID			GL-SS-01	GL-SS-02	GL-SS-03	GL-SS-04	GL-SS-05	GL-SS-06	GL-SS-07	GL-SS-08
Sample Date			1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000
VOCs in mg/kg	MTCA Method A - Industrial	MTCA Method C - Industrial								Field Duplicate of GL-SS-07
1,1,1-Trichloroethane	20	3,150,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
1,1,2,2-Tetrachloroethane		656	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
1,1,2-Trichloroethane		2,300	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
1,1-Dichloroethane		350,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
1,1-Dichloroethene		219	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
1,2-Dichloroethane		1,440	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
1,2-Dichloroethene (Total)[a]		105,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
1,2-Dichloropropane		1,930	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
2-Butanone		2,100,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
2-Hexanone			0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
4-Methyl-2-Pentanone		280,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Acetone		350,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Benzene	0.5	4,530	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Bromodichloromethane		2,120	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Bromoform		16,600	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Bromomethane		4,900	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Carbon Disulfide		350,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Carbon Tetrachloride		1,010	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Chlorobenzene		70,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Chloroethane			0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Chloroform		21,500	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Chloromethane		10,100	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Cis-1,3-Dichloropropene		729	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Dibromochloromethane		1,560	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Ethylbenzene	20	350,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Methylene Chloride	0.5	17,500	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Styrene		4,380	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Tetrachloroethene	0.5	2,570	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Toluene	40	700,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Trans-1,3-Dichloropropene			0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Trichloroethene	0.5	11,900	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Vinyl Chloride		69.1	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Xylene (Total)	20	7,000,000	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U

[a] MTCA Criteria presented are sum of cis and trans 1,2-dichloroethene.

U Not detected at indicated detection limit.

Table 1 - Analytical Results for Surface Soil Samples
Gorst Landfill
Gorst, Washington

Table 1f - Semivolatile Organic Compounds

Sample ID		GL-SS-01	GL-SS-02	GL-SS-03	GL-SS-04	GL-SS-05	GL-SS-06	GL-SS-07	GL-SS-08
Sample Date		1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000	1/10/2000
SVOCs in mg/kg	MTCA Method C - Industrial								Field Duplicate of GL-SS-07
1,2,4-Trichlorobenzene	35,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
1,2-Dichlorobenzene	35,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
1,3-Dichlorobenzene		0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
1,4-Dichlorobenzene	5,470	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2,2'-Oxybis(1-Chloropropane		0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2,4,5-Trichlorophenol	35,000	1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	11,900	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2,4-Dichlorophenol	10,500	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2,4-Dimethylphenol	70,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2,4-Dinitrophenol	7,000	1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
2,4-Dinitrotoluene	193	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2,6-Dinitrotoluene	193	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2-Chloronaphthalene	280,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2-Chlorophenol	17,500	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2-Methylnaphthalene		0.44 U	0.013 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2-Methylphenol	175,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
2-Nitroaniline		1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
2-Nitrophenol		0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
3,3'-Dichlorobenzidine	292	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
3-Nitroaniline		1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
4,6-Dinitro-2-Methylphenol		1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
4-Bromophenyl-Phenylether		0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
4-Chloro-3-Methylphenol		0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
4-Chloroaniline	14,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
4-Chlorophenyl-Phenylether		0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
4-Methylphenol	17,500	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
4-Nitroaniline		1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
4-Nitrophenol		1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
Acenaphthene	210,000	0.44 U	0.026 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Acenaphthylene		0.44 U	0.014 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Anthracene	1,050,000	0.44 U	0.067 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Benzo(a)anthracene	18	0.44 U	0.15 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Benzo(a)pyrene	18	0.44 U	0.14 J	0.016 J	0.37 U	0.015 J	0.4 U	0.4 U	0.4 U
Benzo(b)fluoranthene	18	0.44 U	0.12	0.009 J	0.006 J	0.36 U	0.4 U	0.4	0.4 U
Benzo(k)fluoranthene	18	0.44 U	0.1	0.005 J	0.003 J	0.36 U	0.4 U	0.4	0.4 U
Total Benzofluoranthenes[a]		0.44 U	0.22	0.014 J	0.009 J	0.36 U	0.4 U	0.8	0.4 U
Benzo(g,h,i)Perylene		0.44 U	0.096 J	0.011 J	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Bis(2-Chloroethoxy)Methane		0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Bis(2-Chloroethyl)Ether	119	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Bis(2-Ethylhexyl)Phthalate	9,370	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U

Table 1 - Analytical Results for Surface Soil Samples
Gorst Landfill
Gorst, Washington

Table 1f - Semivolatile Organic Compounds

Sample ID Sample Date		GL-SS-01 1/10/2000	GL-SS-02 1/10/2000	GL-SS-03 1/10/2000	GL-SS-04 1/10/2000	GL-SS-05 1/10/2000	GL-SS-06 1/10/2000	GL-SS-07 1/10/2000	GL-SS-08 1/10/2000
SVOCs in mg/kg	MTCA Method C - Industrial								Field Duplicate of GL-SS-07
Butylbenzylphthalate	700,000	0.016 J	0.15 J	0.048 J	0.031 J	0.024 J	0.009 J	0.4 U	0.009 J
Carbazole	6,560	0.44 U	0.034 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Chrysene	18	0.44 U	0.18 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Di-N-Butylphthalate	350,000	0.44 U	0.39 U	0.39 U	0.028 J	0.36 U	0.4 U	0.4 U	0.4 U
Di-N-Octylphthalate	70,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Dibenz(a,h)anthracene	18	0.44 U	0.03 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Dibenzofuran		0.44 U	0.013 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Diethylphthalate	2,800,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Dimethylphthalate	3,500,000	0.44 U	0.089 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Fluoranthene	140,000	0.44 U	0.28 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Fluorene	140,000	0.44 U	0.032 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Hexachlorobenzene	82	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Hexachlorobutadiene	1,680	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Hexachlorocyclopentadiene	24,500	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	9,370	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Indeno(1,2,3-cd)pyrene	18	0.44 U	0.088 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Isophorone	138,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
N-Nitroso-Di-N-Propylamine	18.8	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
N-Nitrosodiphenylamine	26,800	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Naphthalene	140,000	0.44 U	0.032 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Nitrobenzene	1,750	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Pentachlorophenol	1,090	1.1 U	0.98 U	0.97 U	0.93 U	0.91 U	1 U	1 U	1 U
Phenanthrene		0.44 U	0.28 J	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Phenol	2,100,000	0.44 U	0.39 U	0.39 U	0.37 U	0.36 U	0.4 U	0.4 U	0.4 U
Pyrene	105,000	0.44 U	0.29 J	0.009 J	0.009 J	0.36 U	0.4 U	0.4 U	0.4 U
Total PAHs[a]	20	0.44 U	1.938	0.05	0.018	0.015	0.4 U	0.4 U	0.4 U

Italicized reporting limits are greater than at least one screening criteria.

[a] MTCA Method A Industrial Cleanup Level is provided for Total PAHs.

U Not detected at indicated detection limit. J Estimated value.

Table 2 - Analytical Results for Freshwater Sediment Samples
Gorst Landfill
Gorst, Washington

Table 2a - TPH

Sample ID Sample Date		GL-SED-01 1/10/2000	GL-SED-02 1/11/2000	GL-SED-03 1/11/2000	GL-SED-04 1/11/2000
TPH in mg/kg	No Available Criteria				
Gasoline (Toluene-C12)		6.5 U	9.6 U	6.1 U	6.1 U
Diesel (C12-C24)		13 U	44	12 U	12 U
Motor Oil (C24-C34)		52 U	400	49 U	49 U

U Not detected at indicated detection limit.

Table 2 - Analytical Results for Freshwater Sediment Samples
Gorst Landfill
Gorst, Washington

Table 2b - PCBs and Pesticides

Sample ID / Sample Date			GL-SED-01 1/10/2000	GL-SED-02 1/11/2000	GL-SED-03 1/11/2000	GL-SED-04 1/11/2000
PCBs/Pesticides in mg/kg	FSQV[a]	EcoTox Thresholds[b]				
Aroclor 1016			0.043 U	0.064 U	0.041 U	0.041 U
Aroclor 1221			0.043 U	0.064 U	0.041 U	0.041 U
Aroclor 1232			0.043 U	0.064 U	0.041 U	0.041 U
Aroclor 1242			0.043 U	0.064 U	0.041 U	0.041 U
Aroclor 1248	0.021		*0.043 U*	*0.064 U*	*0.041 U*	*0.041 U*
Aroclor 1254	0.0073		*0.043 U*	*0.064 U*	*0.041 U*	*0.041 U*
Aroclor 1260			0.043 U	0.064 U	0.041 U	0.041 U
Total Aroclors	0.021		*0.043 U*	*0.064 U*	*0.041 U*	*0.041 U*
4,4'-DDD			0.0043 U	0.0064 U	0.0041 U	0.0041 U
4,4'-DDE			0.0043 U	0.0064 U	0.0041 U	0.0041 U
4,4'-DDT		0.0016	*0.0043 U*	***0.012 J***	*0.0041 U*	*0.0041 U*
Aldrin			0.0022 U	0.0032 U	0.002 U	0.002 U
Alpha-BHC			0.0022 U	0.0032 U	0.002 U	0.002 U
Alpha-Chlordane			0.0022 U	0.0032 U	0.002 U	0.002 U
Beta-BHC			0.0022 U	0.0032 U	0.002 U	0.002 U
Delta-BHC			0.0022 U	0.0032 U	0.002 U	0.002 U
Dieldrin			0.0043 U	0.0064 U	0.0041 U	0.0041 U
Endosulfan I			0.0022 U	0.0032 U	0.002 U	0.002 U
Endosulfan II			0.0043 U	0.0064 U	0.0041 U	0.0041 U
Endosulfan Sulfate			0.0043 U	0.0064 U	0.0041 U	0.0041 U
Endrin			0.0043 U	0.0064 U	0.0041 U	0.0041 U
Endrin Aldehyde			0.0043 U	0.0064 U	0.0041 U	0.0041 U
Endrin Ketone			0.0043 U	0.0064 U	0.0041 U	0.0041 U
Gamma-BHC (Lindane)			0.0022 U	0.0032 U	0.002 U	0.002 U
Gamma-Chlordane			0.0022 U	0.0032 U	0.002 U	0.002 U
Heptachlor			0.0022 U	0.0032 U	0.002 U	0.002 U
Heptachlor Epoxide			0.0022 U	0.0032 U	0.002 U	0.002 U
Methoxychlor			0.022 U	0.032 U	0.02 U	0.02 U
Toxaphene			0.043 U	0.064 U	0.041 U	0.041 U

Italicized reporting limits are greater than at least one screening criteria.

[a] Washington State Department of Ecology, Creation and Analysis of Freshwater Sediment Quality Values in Washington State, July 1997.

[b] Ecotox Thresholds, Effects Range Low (EPA, 1996).

U Not detected at indicated detection limit.

J Estimated value.

Table 2 - Analytical Results for Freshwater Sediment Samples
Gorst Landfill
Gorst, Washington

Table 2c - Priority Pollutant Metals

Sample ID		GL-SED-01	GL-SED-02	GL-SED-03	GL-SED-04
Sample Date		1/10/2000	1/11/2000	1/11/2000	1/11/2000
Metals in mg/kg	FSQV[a]				
Antimony		3.4 U	7.6	3.2 U	3.2 U
Arsenic	57	2	3.5	27.7	2.1
Beryllium		0.34 U	0.52 U	0.32 U	0.32 U
Cadmium	5.1	0.34 U	0.52 U	0.32 U	0.32 U
Chromium	260	35.7	30.5	17.3	30.3
Copper	390	11.3	159	12.7	19.7
Lead	450	4.2	113	16.6	12.4
Mercury	0.41	0.047 U	0.075 U	0.045 U	0.046 U
Nickel		54	53.2	23.1	32.1
Selenium		1.6 UJ	2.4 UJ	0.62 UJ	0.67 UJ
Silver	6.1	0.67 U	1 U	0.63 U	0.64 U
Thallium		0.33 U	0.49 U	0.31 U	0.34 U
Zinc	410	45.4	108	76.4	97.3

[a] Washington State Department of Ecology, Creation and Analysis of Freshwater Sediment Quality Values in Washington State, July 1997.

U Not detected at indicated detection limit.

J Estimated value.

Table 2 - Analytical Results for Freshwater Sediment Samples
Gorst Landfill
Gorst, Washington

Table 2d - TCLP Metals

Sample ID		GL-SED-01	GL-SED-02	GL-SED-03	GL-SED-04
Sample Date		1/10/2000	1/11/2000	1/11/2000	1/11/2000
Metals in ug/L	No Available Criteria				
Antimony		50 U	50 U	50 U	50 U
Arsenic		100 U	100 U	100 U	100 U
Beryllium		5 U	5 U	5 U	5 U
Cadmium		5 U	5 U	5 U	5 U
Chromium		10 U	10 U	10 U	10 U
Copper		10 U	80.2 U	14.3 U	26.8 U
Lead		30 U	37	30 U	30 U
Mercury		0.4 U	0.4 U	0.4 U	0.4 U
Nickel		11	10 U	12.8	11.8
Selenium		100 U	100 U	100 U	100 U
Silver		10 U	10 U	10 U	10 U
Thallium		200 U	200 U	200 U	200 U
Zinc		303 U	366 U	402 U	426 U

U Not detected at indicated detection limit.

Table 2 - Analytical Results for Freshwater Sediment Samples
Gorst Landfill
Gorst, Washington

Table 2e - Volatiles Organic Compounds

Sample ID		GL-SED-01	GL-SED-02	GL-SED-03	GL-SED-04
Sample Date		1/10/2000	1/11/2000	1/11/2000	1/11/2000
VOCs in mg/kg	No Available Criteria				
1,1,1-Trichloroethane		0.013 U	0.019 U	0.012 U	0.012 U
1,1,2,2-Tetrachloroethane		0.013 U	0.019 U	0.012 U	0.012 U
1,1,2-Trichloroethane		0.013 U	0.019 U	0.012 U	0.012 U
1,1-Dichloroethane		0.013 U	0.019 U	0.012 U	0.012 U
1,1-Dichloroethene		0.013 U	0.019 U	0.012 U	0.012 U
1,2-Dichloroethane		0.013 U	0.019 U	0.012 U	0.012 U
1,2-Dichloroethene (Total)[a]		0.013 U	0.019 U	0.012 U	0.012 U
1,2-Dichloropropane		0.013 U	0.019 U	0.012 U	0.012 U
2-Butanone		0.013 U	0.019 U	0.012 U	0.012 U
2-Hexanone		0.013 U	0.019 U	0.012 U	0.012 U
4-Methyl-2-Pentanone		0.013 U	0.019 U	0.012 U	0.012 U
Acetone		0.013 U	0.019 U	0.012 U	0.012 U
Benzene		0.013 U	0.019 U	0.012 U	0.012 U
Bromodichloromethane		0.013 U	0.019 U	0.012 U	0.012 U
Bromoform		0.013 U	0.019 U	0.012 U	0.012 U
Bromomethane		0.013 U	0.019 U	0.012 U	0.012 U
Carbon Disulfide		0.013 U	0.019 U	0.012 U	0.012 U
Carbon Tetrachloride		0.013 U	0.019 U	0.012 U	0.012 U
Chlorobenzene		0.013 U	0.019 U	0.012 U	0.012 U
Chloroethane		0.013 U	0.019 U	0.012 U	0.012 U
Chloroform		0.013 U	0.019 U	0.012 U	0.012 U
Chloromethane		0.013 U	0.019 U	0.012 U	0.012 U
Cis-1,3-Dichloropropene		0.013 U	0.019 U	0.012 U	0.012 U
Dibromochloromethane		0.013 U	0.019 U	0.012 U	0.012 U
Ethylbenzene		0.013 U	0.019 U	0.012 U	0.012 U
Methylene Chloride		0.013 U	0.019 U	0.012 U	0.012 U
Styrene		0.013 U	0.019 U	0.012 U	0.012 U
Tetrachloroethene		0.013 U	0.019 U	0.012 U	0.012 U
Toluene		0.013 U	0.019 U	0.012 U	0.012 U
Trans-1,3-Dichloropropene		0.013 U	0.019 U	0.012 U	0.012 U
Trichloroethene		0.013 U	0.019 U	0.012 U	0.012 U
Vinyl Chloride		0.013 U	0.019 U	0.012 U	0.012 U
Xylene (Total)		0.013 U	0.019 U	0.012 U	0.012 U

[a] MTCA Criteria presented are sum of cis and trans 1,2-dichloroethene.
U Not detected at indicated detection limit.

Table 2 - Analytical Results for Freshwater Sediment Samples
Gorst Landfill
Gorst, Washington

Table 2f - Semivolatile Organic Compounds

Sample ID			GL-SED-01	GL-SED-02	GL-SED-03	GL-SED-04
Sample Date			1/10/2000	1/11/2000	1/11/2000	1/11/2000
SVOCs in mg/kg	FSQV[a]	EcoTox Thresholds[b]				
1,2,4-Trichlorobenzene			0.43 U	0.64 U	0.4 U	0.4 U
1,2-Dichlorobenzene			0.43 U	0.64 U	0.4 U	0.4 U
1,3-Dichlorobenzene			0.43 U	0.64 U	0.4 U	0.4 U
1,4-Dichlorobenzene			0.43 U	0.64 U	0.4 U	0.4 U
2,2'-Oxybis(1-Chloropropane)			0.43 U	0.64 U	0.4 U	0.4 U
2,4,5-Trichlorophenol			1.1 U	1.6 U	1 U	1 U
2,4,6-Trichlorophenol			0.43 U	0.64 U	0.4 U	0.4 U
2,4-Dichlorophenol			0.43 U	0.64 U	0.4 U	0.4 U
2,4-Dimethylphenol			0.43 U	0.64 U	0.4 U	0.4 U
2,4-Dinitrophenol			1.1 U	1.6 U	1 U	1 U
2,4-Dinitrotoluene			0.43 U	0.64 U	0.4 U	0.4 U
2,6-Dinitrotoluene			0.43 U	0.64 U	0.4 U	0.4 U
2-Chloronaphthalene			0.43 U	0.64 U	0.4 U	0.4 U
2-Chlorophenol			0.43 U	0.64 U	0.4 U	0.4 U
2-Methylnaphthalene			0.43 U	0.64 U	0.4 U	0.4 U
2-Methylphenol			0.43 U	0.64 U	0.4 U	0.4 U
2-Nitroaniline			1.1 U	1.6 U	1 U	1 U
2-Nitrophenol			0.43 U	0.64 U	0.4 U	0.4 U
3,3'-Dichlorobenzidine			0.43 U	0.64 U	0.4 U	0.4 U
3-Nitroaniline			1.1 U	1.6 U	1 U	1 U
4,6-Dinitro-2-Methylphenol			1.1 U	1.6 U	1 U	1 U
4-Bromophenyl-Phenylether			0.43 U	0.64 U	0.4 U	0.4 U
4-Chloro-3-Methylphenol			0.43 U	0.64 U	0.4 U	0.4 U
4-Chloroaniline			0.43 U	0.64 U	0.4 U	0.4 U
4-Chlorophenyl-Phenylether			0.43 U	0.64 U	0.4 U	0.4 U
4-Methylphenol			0.43 U	0.017 J	0.4 U	0.4 U
4-Nitroaniline			1.1 U	1.6 U	1 U	1 U
4-Nitrophenol			1.1 U	1.6 U	1 U	1 U
Acenaphthene	3.5		0.43 U	0.64 U	0.4 U	0.4 U
Acenaphthylene	1.9		0.43 U	0.64 U	0.4 U	0.4 U
Anthracene	2.1		0.43 U	0.64 U	0.4 U	0.4 U
Benzo(a)anthracene	5		0.43 U	0.045 J	0.4 U	0.4 U
Benzo(a)pyrene	7		0.43 U	0.045 J	0.4 U	0.4 U
Benzo(b)fluoranthene			0.43	0.058 J	0.4 U	0.4 U
Benzo(k)fluoranthene			0.43	0.042 J	0.4 U	0.4 U
Total Benzofluoranthenes	11		0.86	0.1 J	0.4 U	0.4 U
Benzo(g,h,i)Perylene	1.2		0.43 U	0.64 U	0.4 U	0.4 U
Bis(2-Chloroethoxy)Methane			0.43 U	0.64 U	0.4 U	0.4 U
Bis(2-Chloroethyl)Ether			0.43 U	0.64 U	0.4 U	0.4 U
Bis(2-Ethylhexyl)Phthalate	0.64		0.43 U	0.64 U	0.4 U	0.4 U
Butylbenzylphthalate		11	0.43 U	0.095 J	0.4 U	0.4 U

Table 2 - Analytical Results for Freshwater Sediment Samples
Gorst Landfill
Gorst, Washington

Table 2f - Semivolatile Organic Compounds

Sample ID			GL-SED-01	GL-SED-02	GL-SED-03	GL-SED-04
Sample Date			1/10/2000	1/11/2000	1/11/2000	1/11/2000
SVOCs in mg/kg	FSQV[a]	EcoTox Thresholds[b]				
Carbazole	0.14		*0.43 U*	*0.64 U*	*0.4 U*	*0.4 U*
Chrysene	7.4		0.43 U	0.073 J	0.4 U	0.4 U
Di-N-Butylphthalate			0.43 U	0.03 J	0.4 U	0.4 U
Di-N-Octylphthalate			0.43 U	0.027 J	0.4 U	0.4 U
Dibenz(a,h)anthracene	0.23		*0.43 U*	*0.64 U*	*0.4 U*	*0.4 U*
Dibenzofuran			0.43 U	0.64 U	0.4 U	0.4 U
Diethylphthalate			0.43 U	0.64 U	0.4 U	0.4 U
Dimethylphthalate			0.43 U	0.64 U	0.4 U	0.4 U
Fluoranthene	11		0.43 U	0.097 J	0.4 U	0.4 U
Fluorene	3.6		0.43 U	0.64 U	0.4 U	0.4 U
Hexachlorobenzene			0.43 U	0.64 U	0.4 U	0.4 U
Hexachlorobutadiene			0.43 U	0.64 U	0.4 U	0.4 U
Hexachlorocyclopentadiene			0.43 U	0.64 U	0.4 U	0.4 U
Hexachloroethane			0.43 U	0.64 U	0.4 U	0.4 U
Indeno(1,2,3-cd)pyrene	0.73		0.43 U	0.045 J	0.4 U	0.4 U
Isophorone			0.43 U	0.64 U	0.4 U	0.4 U
N-Nitroso-Di-N-Propylamine			0.43 U	0.64 U	0.4 U	0.4 U
N-Nitrosodiphenylamine			0.43 U	0.64 U	0.4 U	0.4 U
Naphthalene	37		0.43 U	0.64 U	0.4 U	0.4 U
Nitrobenzene			0.43 U	0.64 U	0.4 U	0.4 U
Pentachlorophenol			1.1 U	0.036 J	1 U	1 U
Phenanthrene	5.7		0.43 U	0.06 J	0.4 U	0.4 U
Phenol			0.43 U	0.64 U	0.4 U	0.4 U
Pyrene	9.6		0.43 U	0.097 J	0.4 U	0.4 U
LPAHs	27		0.43 U	0.06	0.4 U	0.4 U
HPAHs	36		0.43 U	0.502	0.4 U	0.4 U
Total PAHs	60		0.43 U	0.562	0.4 U	0.4 U

Italicized reporting limits are greater than at least one screening criteria.

[a] Washington State Department of Ecology, Creation and Analysis of Freshwater Sediment Quality Values in Washington State, July 1997.

[b] Ecotox Thresholds, Tier II Levels (EPA, 1996).

U Not detected at indicated detection limit. J Estimated value.

Table 3 - Analytical Results for Groundwater Samples
Gorst Landfill
Gorst, Washington

Table 3a - PCBs

Sample ID Sample Date			GL-GW-BR11 1/14/2000	GL-GW-BR12 1/14/2000
PCBs in µg/L	MTCA Method A-Residential	MTCA Method B		Field Duplicate of GL-GW-BR11
Aroclor 1016	0.1	1.12	*1 U*	*1 U*
Aroclor 1221	0.1		*1 U*	*1 U*
Aroclor 1232	0.1		*1 U*	*1 U*
Aroclor 1242	0.1		*1 U*	*1 U*
Aroclor 1248	0.1		*1 U*	*1 U*
Aroclor 1254	0.1	0.32	*1 U*	*1 U*
Aroclor 1260	0.1		*1 U*	*1 U*
Total Aroclors	0.1	0.0114	*1 U*	*1 U*

Italicized reporting limits are greater than at least one screening criteria.

U Not detected at indicated detection limit.

Table 3 - Analytical Results for Groundwater Samples
Gorst Landfill
Gorst, Washington

Table 3b - Priority Pollutant Metals

Sample-ID Sample Date		GL-GW-BR-11 1/14/2000		GL-GW-BR-12 1/14/2000 Field Duplicate of GL-GW-BR11	
Metals in µg/L	MTCA Method B	Total	Dissolved	Total	Dissolved
Antimony	6.4	*50 U*	*50 U*	*50 U*	*50 U*
Arsenic	0.005	*5 U*	*5 U*	*5 U*	*5 U*
Beryllium	0.02	*5 U*	*5 U*	*5 U*	*5 U*
Cadmium	8	5 U	5 U	5 U	5 U
Chromium	80	10 U	10 U	10 U	10 U
Copper	592	10 U	10 U	10 U	10 U
Lead		3 U	3 U	3 U	3 U
Mercury	4.8	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	320	10 U	10 U	10 U	10 U
Selenium	80	5 U	5 U	5 U	5 U
Silver	80	10 U	10 U	10 U	10 U
Thallium	1.12	*5 U*	*5 U*	*5 U*	*5 U*
Zinc	4,800	10 U	10 U	10 U	10 U

Italicized reporting limits are greater than at least one screening criteria.

U Not detected at indicated detection limit.

Table 3 - Analytical Results for Groundwater Samples
Gorst Landfill
Gorst, Washington

Table 3c - Volatile Organic Compounds

Sample ID		GL-GW-BR-11	GL-GW-BR-12	GL-TB-01
Sample Date		1/14/2000	1/14/2000	
VOCs in µg/L	MTCA Method B		Field Duplicate of GL-GW-BR11	
1,1,1-Trichloroethane	7,200	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	0.22	*10 U*	*10 U*	*10 U*
1,1,2-Trichloroethane	0.77	*10 U*	*10 U*	*10 U*
1,1-Dichloroethane	800	10 U	10 U	10 U
1,1-Dichloroethene	0.073	*10 U*	*10 U*	*10 U*
1,2-Dichloroethane	0.48	*10 U*	*10 U*	*10 U*
1,2-Dichloroethene (Total)[a]	240	10 U	10 U	10 U
1,2-Dichloropropane	0.64	*10 U*	*10 U*	*10 U*
2-Butanone	4,800	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U
4-Methyl-2-Pentanone	800	10 U	10 U	10 U
Acetone	800	10 U	10 U	10 U
Benzene	1.5	*10 U*	*10 U*	*10 U*
Bromodichloromethane	0.71	*10 U*	*10 U*	*10 U*
Bromoform	5.54	*10 U*	*10 U*	*10 U*
Bromomethane	11.2	10 U	10 U	10 U
Carbon Disulfide	800	10 U	10 U	10 U
Carbon Tetrachloride	0.34	*10 U*	*10 U*	*10 U*
Chlorobenzene	160	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U
Chloroform	7.17	*10 U*	*10 U*	*10 U*
Chloromethane	3.36	*10 U*	*10 U*	*10 U*
Cis-1,3-Dichloropropene		10 U	10 U	10 U
Dibromochloromethane	0.52	*10 U*	*10 U*	*10 U*
Ethylbenzene	800	10 U	10 U	10 U
Methylene Chloride	5.8	*10 U*	*2 J*	*10 U*
Styrene	1.46	*10 U*	*10 U*	*10 U*
Tetrachloroethene	0.86	*10 U*	*10 U*	*10 U*
Toluene	1,600	10 U	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U
Trichloroethene	3.97	*10 U*	*10 U*	*10 U*
Vinyl Chloride	0.02	*10 U*	*10 U*	*10 U*
Xylene (Total)	1,600	10 U	10 U	10 U

Italicized reporting limits are greater than at least one screening criteria.

[a] MTCA Criteria presented are sum of cis and trans 1,2-dichloroethene.

U Not detected at indicated detection limit. J Estimated value.

Table 3 - Analytical Results for Groundwater Samples
Gorst Landfill
Gorst, Washington

Table 3d - Semivolatile Organic Compounds

Sample-ID Sample Date		GL-GW-BR-11 1/14/2000	GL-GW-BR-12 1/14/2000
SVOCs in µg/L	MTCA Method B		Field Duplicate of GL-GW-BR11
1,2,4-Trichlorobenzene	80	10 U	10 U
1,2-Dichlorobenzene	720	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U
1,4-Dichlorobenzene	1.8	*10 U*	*10 U*
2,2'-Oxybis(1-Chloropropane)	1.25	*10 U*	*10 U*
2,4,5-Trichlorophenol	1,600	25 U	25 U
2,4,6-Trichlorophenol	7.95	*10 U*	*10 U*
2,4-Dichlorophenol	48	10 U	10 U
2,4-Dimethylphenol	320	10 U	10 U
2,4-Dinitrophenol	32	25 U	25 U
2,4-Dinitrotoluene	32	10 U	10 U
2,6-Dinitrotoluene	16	10 U	10 U
2-Chloronaphthalene	1,280	10 U	10 U
2-Chlorophenol	80	10 U	10 U
2-Methylnaphthalene		10 U	10 U
2-Methylphenol	800	10 U	10 U
2-Nitroaniline		25 U	25 U
2-Nitrophenol		10 U	10 U
3,3'-Dichlorobenzidine	0.19	*10 U*	*10 U*
3-Nitroaniline		25 U	25 U
4,6-Dinitro-2-Methylphenol		25 U	25 U
4-Bromophenyl-Phenylether		10 U	10 U
4-Chloro-3-Methylphenol		10 U	10 U
4-Chloroaniline	64	10 U	10 U
4-Chlorophenyl-Phenylether		10 U	10 U
4-Methylphenol	80	10 U	10 U
4-Nitroaniline		25 U	25 U
4-Nitrophenol		25 U	25 U
Acenaphthene	960	10 U	10 U
Acenaphthylene		10 U	10 U
Anthracene	4,800	10 U	10 U
Benzo(a)anthracene	0.012	*10 U*	*10 U*
Benzo(a)pyrene	0.012	*10 U*	*10 U*
Benzo(b)fluoranthene	0.012	*10 U*	*10 U*
Benzo(g,h,i)perylene		10 U	10 U
Benzo(k)fluoranthene	0.012	*10 U*	*10 U*
Bis(2-Chloroethoxy)Methane		10 U	10 U
Bis(2-Chloroethyl)Ether	0.04	*10 U*	*10 U*

Table 3 - Analytical Results for Groundwater Samples
Gorst Landfill
Gorst, Washington

Table 3d - Semivolatile Organic Compounds

Sample ID Sample Date		GL-GW-BR-11 1/14/2000	GL-GW-BR-12 1/14/2000
SVOCs in µg/L	MTCA Method B		Field Duplicate of GL-GW-BR11
Bis(2-Ethylhexyl)Phthalate	6.25	*10 U*	*10 U*
Butylbenzylphthalate	3,200	10 U	10 U
Carbazole	4.38	*10 U*	*10 U*
Chrysene	0.012	*10 U*	*10 U*
Di-N-Butylphthalate	1,600	10 U	10 U
Di-N-Octylphthalate	320	10 U	10 U
Dibenz(a,h)anthracene	0.012	*10 U*	*10 U*
Dibenzofuran		10 U	10 U
Diethylphthalate	12,800	10 U	10 U
Dimethylphthalate	16,000	10 U	10 U
Fluoranthene	640	10 U	10 U
Fluorene	640	10 U	10 U
Hexachlorobenzene	0.05	*10 U*	*10 U*
Hexachlorobutadiene	0.56	*10 U*	*10 U*
Hexachlorocyclopentadiene	112	10 U	10 U
Hexachloroethane	6.25	*10 U*	*10 U*
Indeno(1,2,3-cd)pyrene	0.012	*10 U*	*10 U*
Isophorone	92	10 U	10 U
N-Nitroso-Di-N-Propylamine	0.013	*10 U*	*10 U*
N-Nitrosodiphenylamine	17.9	10 U	10 U
Naphthalene	320	10 U	10 U
Nitrobenzene	8	*10 U*	*10 U*
Pentachlorophenol	0.73	*25 U*	*25 U*
Phenanthrene		10 U	10 U
Phenol	9,600	10 U	10 U
Pyrene	480	10 U	10 U

Italicized reporting limits are greater than at least one screening criteria.
U Not detected at indicated detection limit.

Table 4 - Analytical Results for Surface Water Samples
Gorst Landfill
Gorst, Washington

Table 4a - PCBs

Sample ID Sample Date			GL-SW-01 1/10/2000	GL-SW-02 1/11/2000
PCBs in µg/L	MTCA Method B	Surface Water Quality Standards[a]		
Aroclor 1016			1 U	1 U
Aroclor 1221			1 U	1 U
Aroclor 1232			1 U	1 U
Aroclor 1242			1 U	1 U
Aroclor 1248			1 U	1 U
Aroclor 1254			1 U	1 U
Aroclor 1260			1 U	1 U
Total Aroclors	0.000027	0.014	*1 U*	*1 U*

Italicized reporting limits are greater than at least one screening criteria.

[a] Water Quality Standards for Surface Waters of the State of Washington, Chronic Criteria (WAC 173-201A) and Freshwater Chronic Criteria (EPA, 1999).

U Not detected at indicated detection limit.

Table 4 - Analytical Results for Surface Water Samples
Gorst Landfill
Gorst, Washington

Table 4b - Priority Pollutant Metals

Sample-ID				GL-SW-01		GL-SW-02	
Sample Date				1/10/2000		1/11/2000	
Metals in µg/L	MTCA Method B	EcoTox Thresholds[a]	Surface Water Quality Standards (dissolved) [c]	Total	Dissolved	Total	Dissolved
Antimony				50 U	50 U	50 U	50 U
Arsenic	0.098		190	*5 U*	*5 U*	*5 U*	*5 U*
Beryllium	0.079	5.1		*5 U*	*5 U*	*5 U*	*5 U*
Cadmium [b]	20.3		0.19	*5 U*	*5 U*	*5 U*	*5 U*
Chromium			10	10 U	10 U	10 U	10 U
Copper [b]	2,665		2	*10 U*	*10 U*	*10 U*	*10 U*
Lead [b]			0.2	*3 U*	*3 U*	*3 U*	*3 U*
Mercury			0.012	*0.2*	*0.2 U*	*0.2 U*	*0.2 U*
Nickel [b]	1,100		23	*10 U*	*10 U*	*10 U*	*10 U*
Selenium			5	5 U	5 U	5 U	5 U
Silver [b]	25,900		0.07	10 U	10 U	10 U	10 U
Thallium	1.56			*5 U*	*5 U*	*5 U*	*5 U*
Zinc [b]	16,500		15	10 U	10 U	10 U	10 U

Italicized reporting limits are greater than at least one screening criteria.

[a] Ecotox Thresholds, Effects Range Low (EPA, 1996).

[b] Water Quality Standards for Surface Waters of the State of Washington, Chronic Criteria (WAC 173-201A). Criteria have been corrected for hardness, where appropriate.

[c] Hardness used in surface water calculations is an average for the two samples of 10.3.

U Not detected at indicated detection limit.

Taole 4 - Analytical Results for Surface Water Samples
Gorst Landfill
Gorst, Washington

Table 4c - Volatile Organic Compounds

Sample ID Sample Date			GL-SW-01 1/10/2000	GL-SW-02 1/11/2000
VOCs in µg/L	MTCA Method B	EcoTox Thresholds[a]		
1,1,1-Trichloroethane	416,666	62	10 U	10 U
1,1,2,2-Tetrachloroethane	6.48	420	*10 U*	*10 U*
1,1,2-Trichloroethane	25.3		10 U	10 U
1,1-Dichloroethane			10 U	10 U
1,1-Dichloroethene	1.93		*10 U*	*10 U*
1,2-Dichloroethane	59		10 U	10 U
1,2-Dichloroethene (Total)			10 U	10 U
1,2-Dichloropropane	23		10 U	10 U
2-Butanone			10 U	10 U
2-Hexanone			10 U	10 U
4-Methyl-2-Pentanone			10 U	10 U
Acetone			10 U	10 U
Benzene	43		10 U	10 U
Bromodichloromethane	28		10 U	10 U
Bromoform	219		10 U	10 U
Bromomethane	968		10 U	10 U
Carbon Disulfide			10 U	10 U
Carbon Tetrachloride	2.66		*10 U*	*10 U*
Chlorobenzene	5,034	130	10 U	10 U
Chloroethane			10 U	10 U
Chloroform	6,914		10 U	10 U
Chloromethane	133		10 U	10 U
Cis-1,3-Dichloropropene			10 U	10 U
Dibromochloromethane	20.6		10 U	10 U
Ethylbenzene	6,914	290	10 U	10 U
Methylene Chloride	960		10 U	10 U
Styrene			10 U	10 U
Tetrachloroethene	4.15	120	*10 U*	*10 U*
Toluene	48,460	130	10 U	10 U
Trans-1,3-Dichloropropene			10 U	10 U
Trichloroethene	55.6	350	10 U	10 U
Vinyl Chloride	2.9		*10 U*	*10 U*
Xylene (Total)			10 U	10 U

Italicized reporting limits are greater than at least one screening criteria.

[a] Ecotox Thresholds, Effects Range Low (EPA, 1996).

U Not detected at indicated detection limit. J Estimated value.

Table 4 - Analytical Results for Surface Water Samples
Gorst Landfill
Gorst, Washington

Table 4d - Semivolatile Organic Compounds

Sample ID			GL-SW-01	GL-SW-02
Sample Date			1/10/2000	1/11/2000
SVOCs in µg/L	MTCA Method B	EcoTox Thresholds[a]		
1,2,4-Trichlorobenzene	227	110	10 U	10 U
1,2-Dichlorobenzene	4,197	14	10 U	10 U
1,3-Dichlorobenzene		71	10 U	10 U
1,4-Dichlorobenzene	4.86	15	*10 U*	*10 U*
2,2'-Oxybis(1-Chloropropane)			10 U	10 U
2,4,5-Trichlorophenol			25 U	25 U
2,4,6-Trichlorophenol	3.93		*10 U*	*10 U*
2,4-Dichlorophenol	191		10 U	10 U
2,4-Dimethylphenol	553		10 U	10 U
2,4-Dinitrophenol	3,457		25 U	25 U
2,4-Dinitrotoluene	1,365		10 U	10 U
2,6-Dinitrotoluene			10 U	10 U
2-Chloronaphthalene			10 U	10 U
2-Chlorophenol	97		10 U	10 U
2-Methylnaphthalene			10 U	10 U
2-Methylphenol			10 U	10 U
2-Nitroaniline			25 U	25 U
2-Nitrophenol			10 U	10 U
3,3'-Dichlorobenzidine	0.046		*10 U*	*10 U*
3-Nitroaniline			25 U	25 U
4,6-Dinitro-2-Methylphenol			25 U	25 U
4-Bromophenyl-Phenylether		1.5	*10 U*	*10 U*
4-Chloro-3-Methylphenol			10 U	10 U
4-Chloroaniline			10 U	10 U
4-Chlorophenyl-Phenylether			10 U	10 U
4-Methylphenol			10 U	10 U
4-Nitroaniline			25 U	25 U
4-Nitrophenol			25 U	25 U
Acenaphthene	643		10 U	10 U
Acenaphthylene			10 U	10 U
Anthracene	25,926		10 U	10 U
Benzo(a)anthracene	0.03		*10 U*	*10 U*
Benzo(a)pyrene	0.03	0.014	*10 U*	*10 U*
Benzo(b)fluoranthene	0.03		*10 U*	*10 U*
Benzo(g,h,i)perylene			10 U	10 U
Benzo(k)fluoranthene	0.03		*10 U*	*10 U*
Bis(2-Chloroethoxy)Methane			10 U	10 U
Bis(2-Chloroethyl)Ether	0.85		*10 U*	*10 U*
Bis(2-Ethylhexyl)Phthalate	3.56	32	*10 U*	*10 U*

Table 4 - Analytical Results for Surface Water Samples
Gorst Landfill
Gorst, Washington

Table 4d - Semivolatile Organic Compounds

Sample-ID Sample Date			GL-SW-01 1/10/2000	GL-SW-02 1/11/2000
SVOCs in µg/L	MTCA Method B	EcoTox Thresholds[a]		
Butylbenzylphthalate	1,252	19	10 U	10 U
Carbazole			10 U	10 U
Chrysene	0.03		*10 U*	*10 U*
Di-N-Butylphthalate	2,913	33	10 U	10 U
Di-N-Octylphthalate			10 U	10 U
Dibenz(a,h)anthracene	0.03		10 U	10 U
Dibenzofuran		20	10 U	10 U
Diethylphthalate	28,412	220	10 U	10 U
Dimethylphthalate	72,016		10 U	10 U
Fluoranthene	90	8.1	*10 U*	*10 U*
Fluorene	3,457	3.9	*10 U*	*10 U*
Hexachlorobenzene	0.24		10 U	10 U
Hexachlorobutadiene	187		10 U	10 U
Hexachlorocyclopentadiene	4,182		10 U	10 U
Hexachloroethane	29.8	12	10 U	10 U
Indeno(1,2,3-cd)pyrene	0.03		10 U	10 U
Isophorone	1,558		10 U	10 U
N-Nitroso-Di-N-Propylamine	0.82		10 U	10 U
N-Nitrosodiphenylamine	9.73		10 U	10 U
Naphthalene	9,877	24	10 U	10 U
Nitrobenzene	449		10 U	10 U
Pentachlorophenol	4.9		*25 U*	*25 U*
Phenanthrene		6.3	*10 U*	*10 U*
Phenol	1,111,111		10 U	10 U
Pyrene	2,593		10 U	10 U

Italicized reporting limits are greater than at least one screening criteria.

[a] Ecotox Thresholds, Effects Range Low (EPA, 1996).
U Not detected at indicated detection limit.

Table 5 - Analytical Results for Conventionals
Gorst Landfill
Gorst, Washington

Table 5a - Freshwater Sediment Samples

Sample ID Sample Date	GL-SED-01 1/10/2000	GL-SED-02 1/11/2000	GL-SED-03 1/11/2000	GL-SED-04 1/11/2000
Moisture in %	23	48	18	18
Total Organic Carbon in mg/kg	9,240	36,200	5,190	3,410

Table 5b - Groundwater and Surface Water Samples

Sample ID Sample Date	GL-GW-BR-11 1/14/2000	GL-GW-BR-12 1/14/2000	GL-SW-01 1/10/2000	GL-SW-02 1/11/2000
Total Suspended Solids in mg/L	10 U	10 U	10 U	10 U

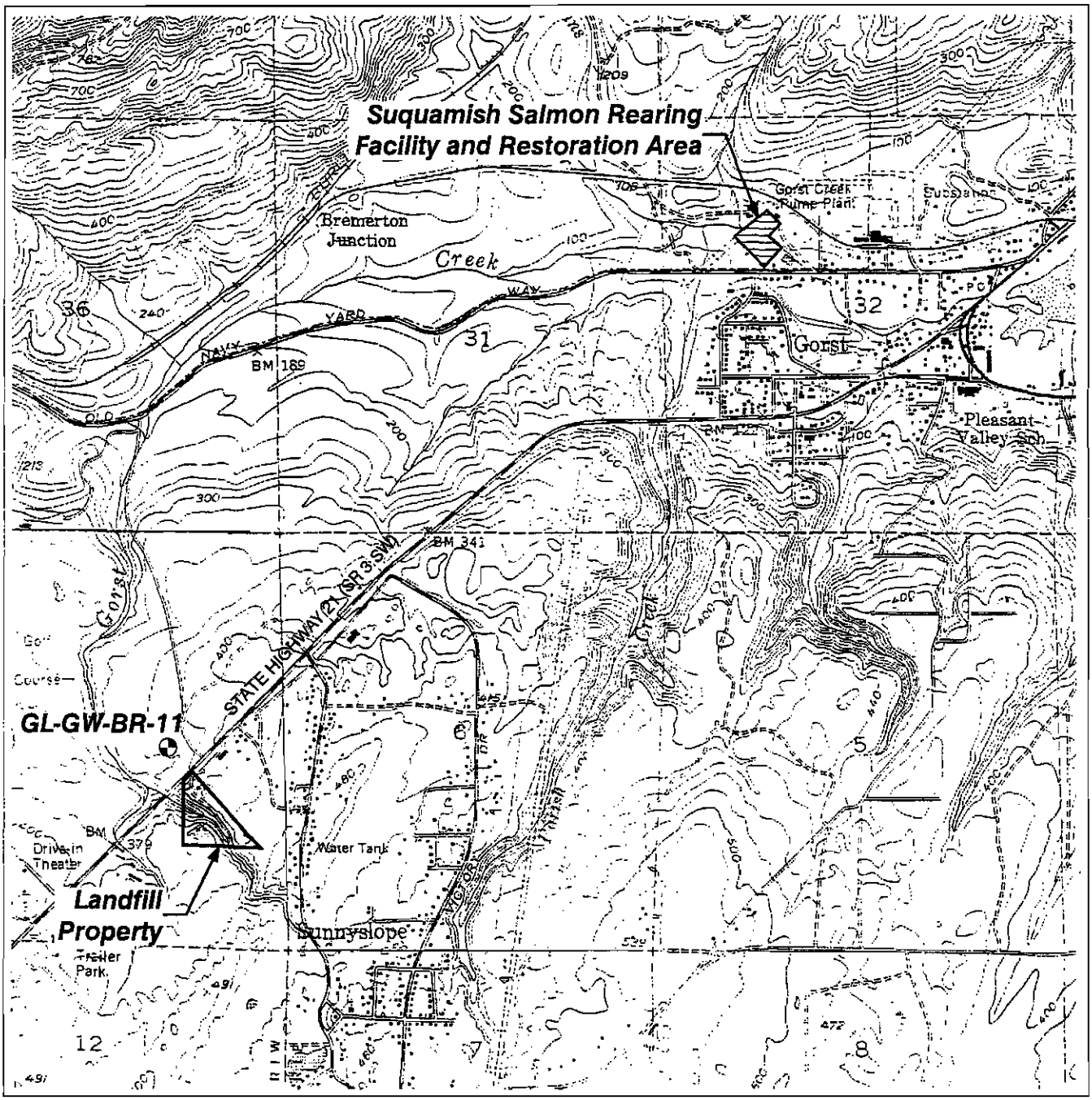
U Not detected at indicated detection limit.

Table 6 - Major Ion Distributions in Surface Water Samples
Gorst Landfill
Gorst, Washington

Sample ID	GL-SW-01	GL-SW-02
Sample Date	1/10/2000	1/11/2000
Ions in mg/L		
Bicarbonate Alkalinity	10	12
Carbonate Alkalinity	5 U	5 U
Total Alkalinity	10	12
Calcium	1.78	2.83
Chloride	1.69	1.69
Hardness	8.88	11.80
Iron	0.22	0.22
Magnesium	1.08	1.16
Manganese	0.01 U	0.01 U
Nitrate/Nitrite as Nitrogen	0.11	0.10
Potassium	0.49	0.48
Sodium	1.82	1.79
Sulfate	2.26	2.89
Total Suspended Solids	10 U	10 U

U Not detected at indicated detection limit.

Vicinity Map



DJP\03\23\00\core\jobs\705712\vmap

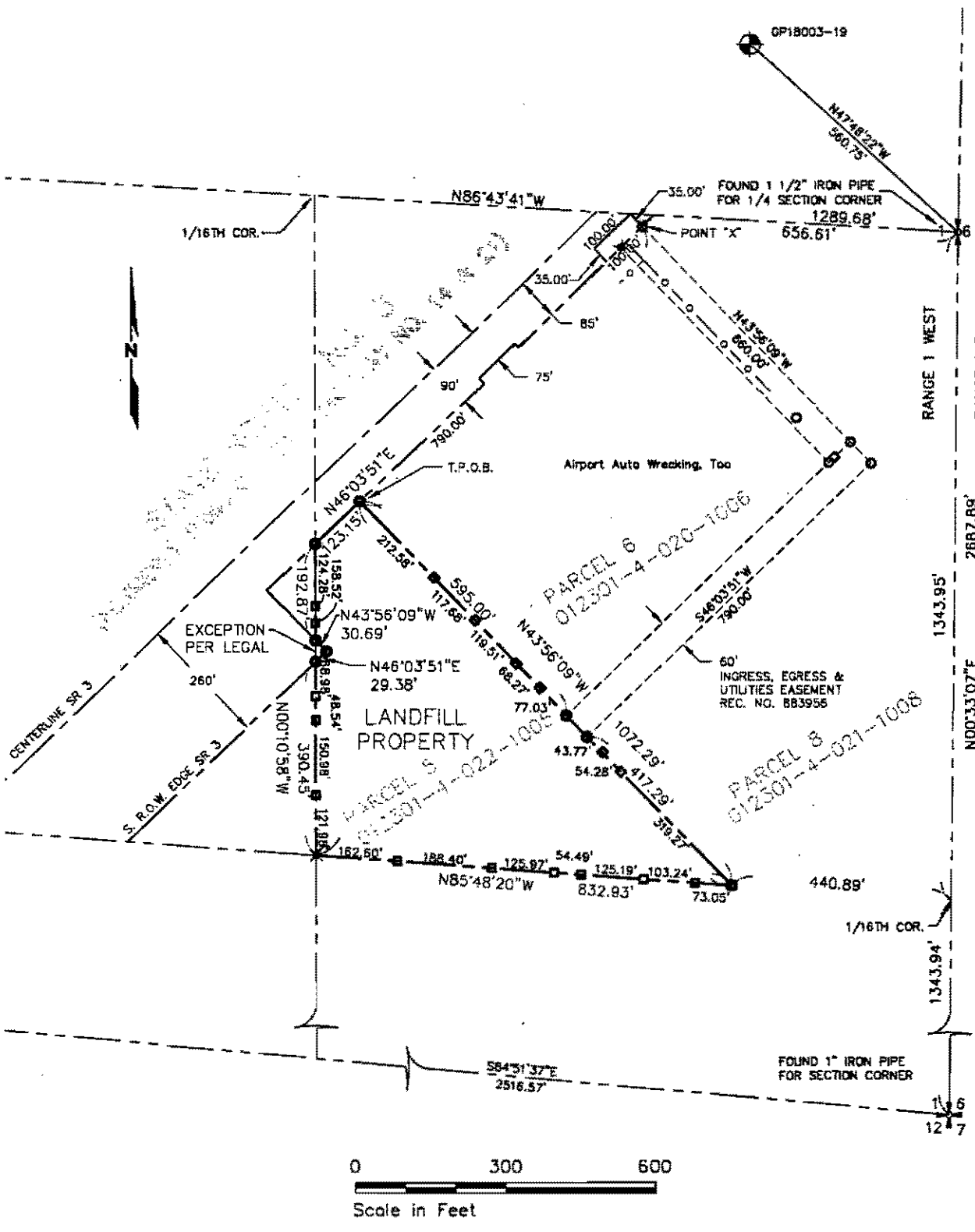
Note: Base map prepared from USGS 7.5 minute quadrangle map of Bremerton West, Washington.

GL-GW-BR-11 Approximate Location of Bremerton Water District Monitoring Well BR-11 Sample and Number

HARTCROWSER

J-7057-12 3/00

Site Property Boundary Plan



0 300 600

Scale in Feet

LEGEND

- SET BRH REBAR & YELLOW PLASTIC CAP
- SET TACK IN LEAD OR PK NAIL WITH ID TAG
- SET 1X2 LINE STAKE

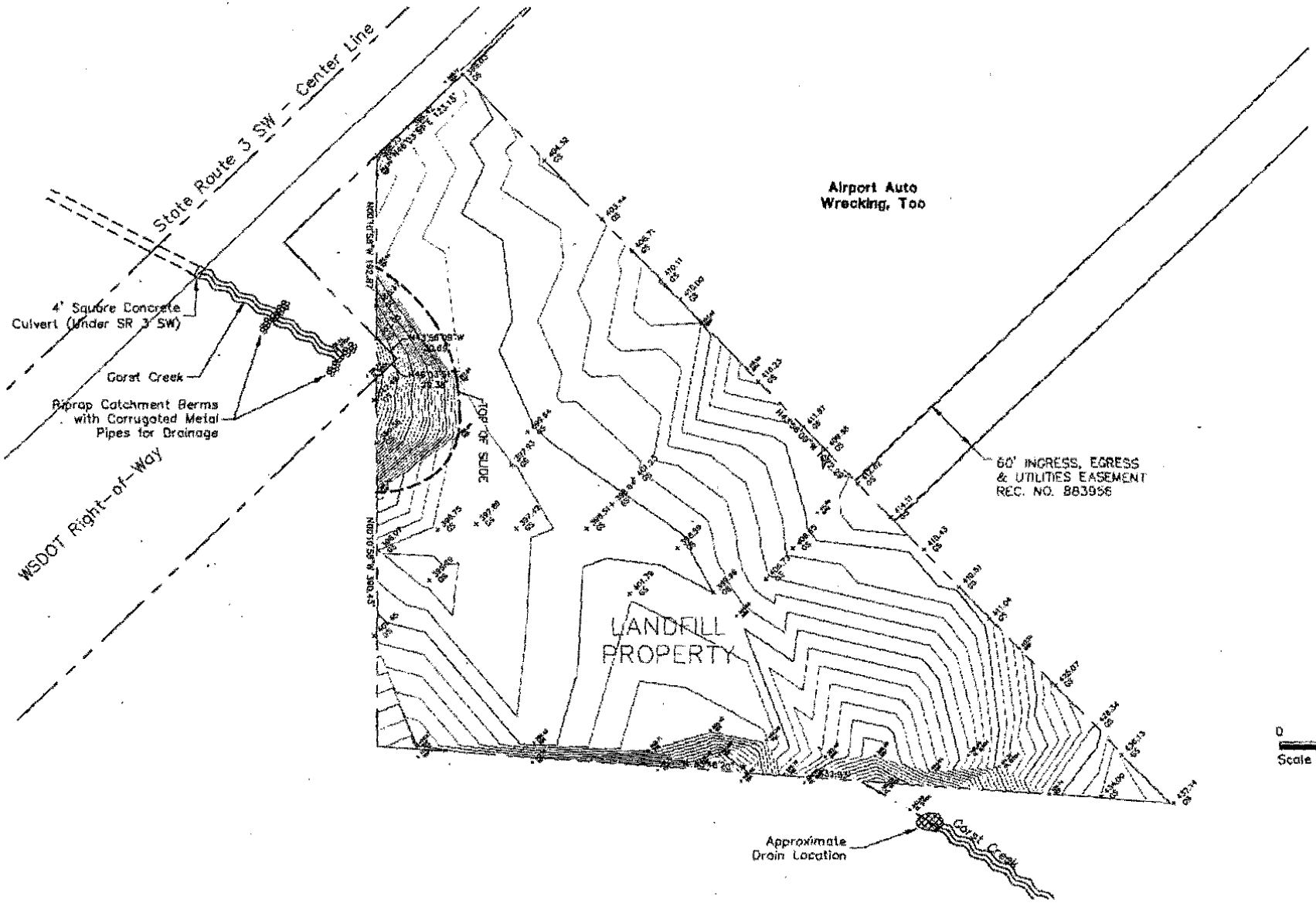
HARTCROWSER

J-7057-12 3/00

Figure 2

DJP 3/28/00 1=... ...ret)N/A/Woodstck.pcp
70571203

Site Features Plan

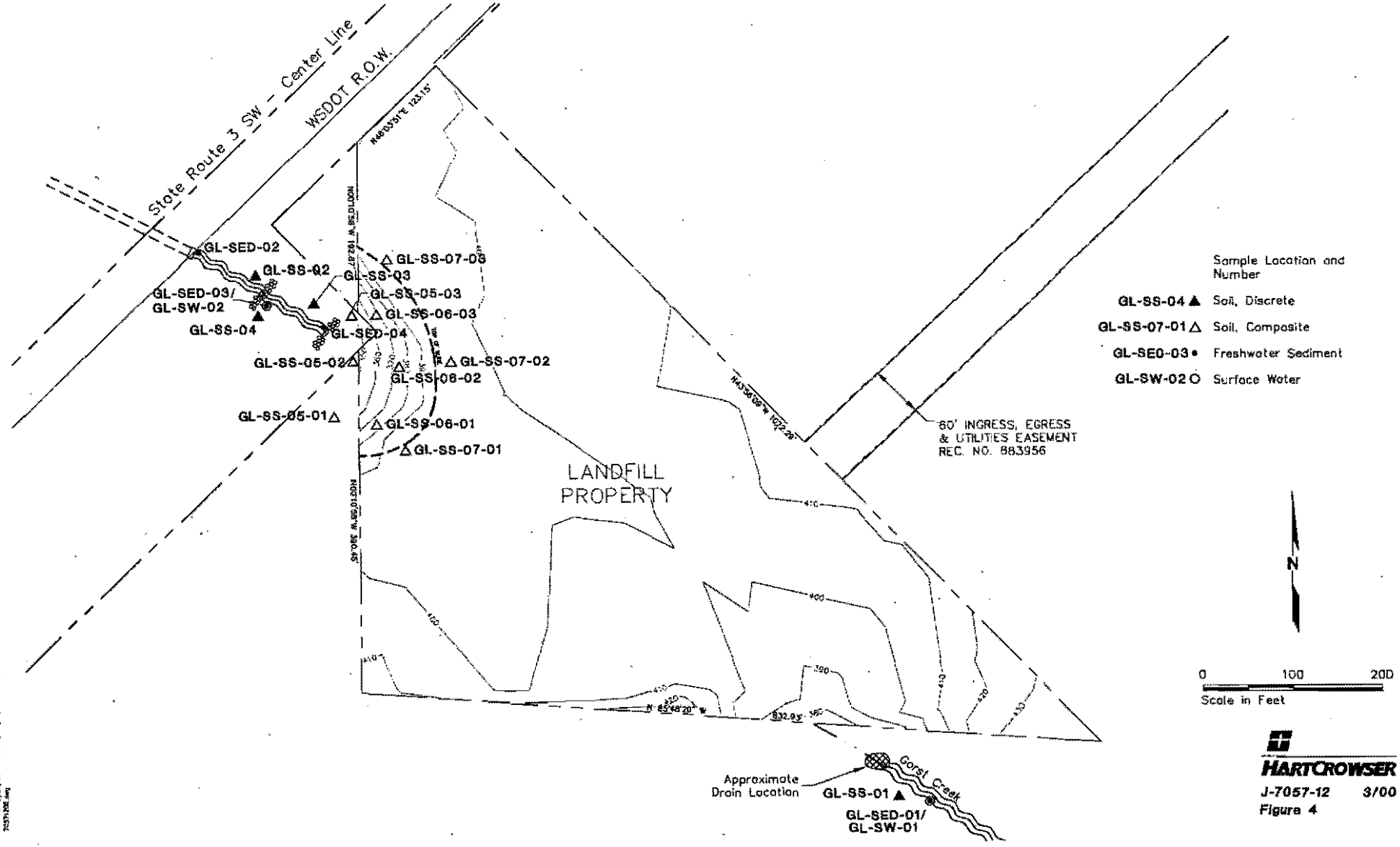


HARTCROWSER

J-7057-12 3/00

Figure 3

Sample Location Map



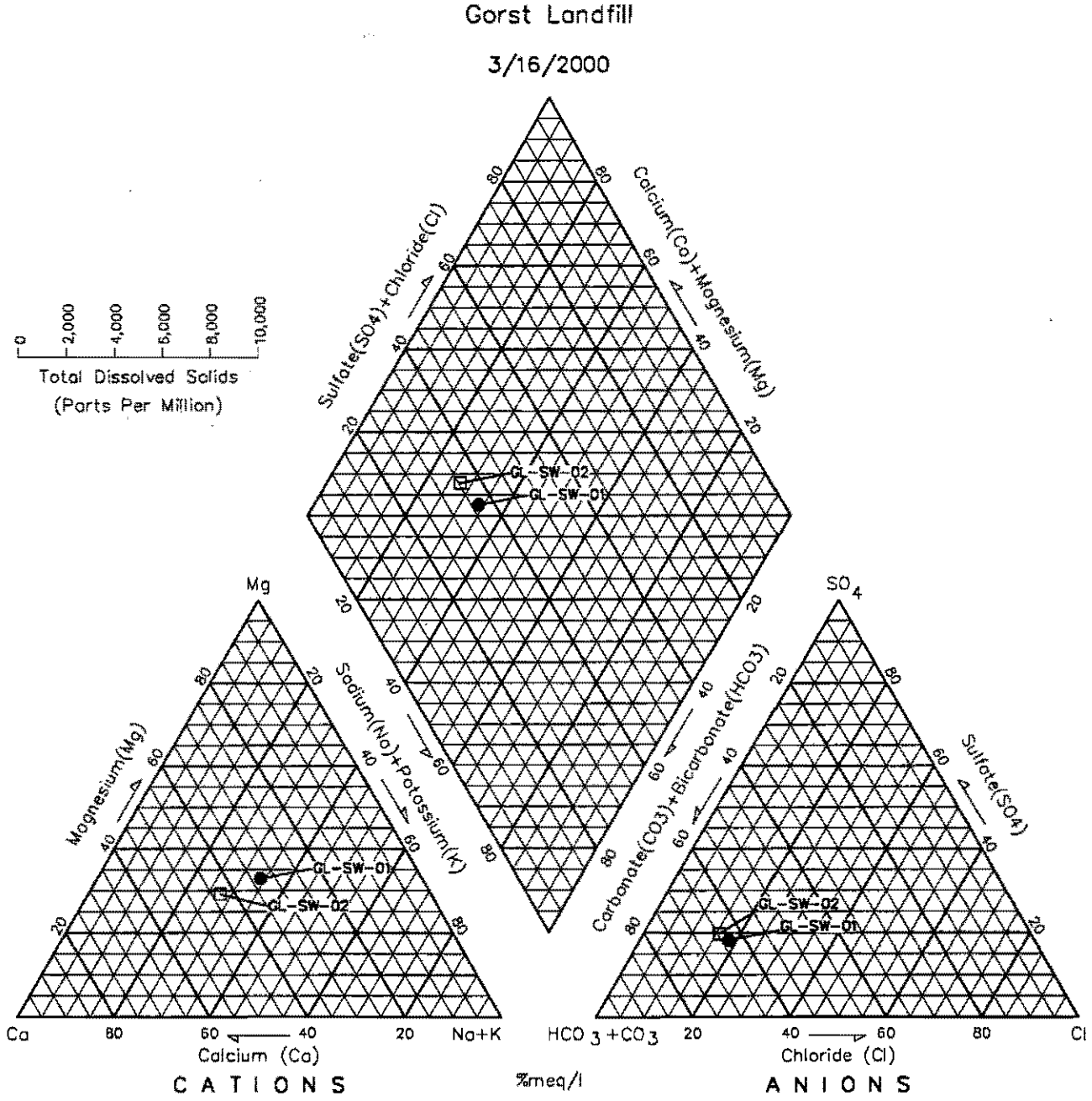
HARTCROWSER

J-7057-12 3/00

Figure 4

Geochemical Comparison of Surface Water Samples

Piper Diagram

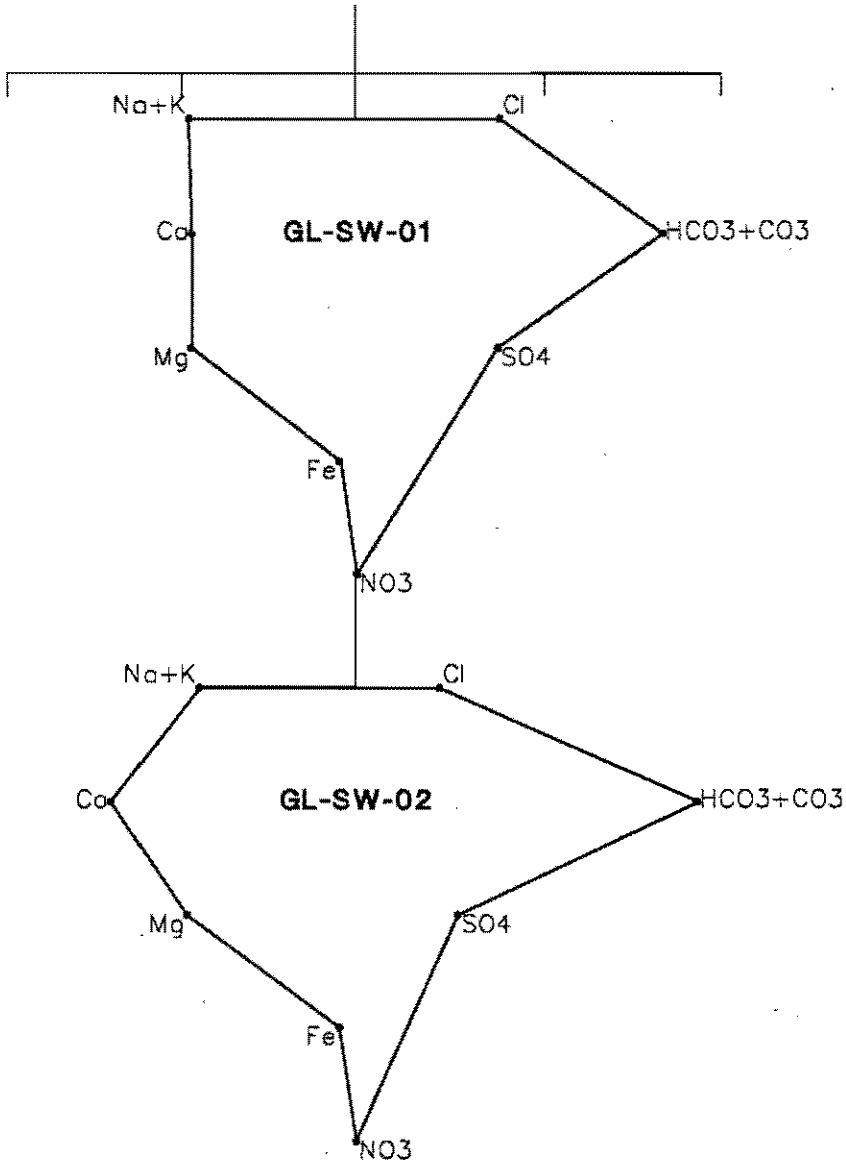


DJP 03/28/00 1=1 /Woodstock.pcp
705712DB

HARTCROWSER
J-7057-12 3/00
Figure 5

Geochemical Comparison of Surface Water Samples

Stiff Diagram



HARTCROWSER
J-7057-12 3/00
Figure 6

APPENDIX A
PROPERTY DOCUMENTS

PACIFIC NORTHWEST TITLE

9927 Mickelberry Road N.W.
P.O. Box 3607
Silverdale, Washington 98383
(360) 692-4141
Fax: (360) 692-5569

July 12, 1999

ATTN: ELIZABETH BLACK
HEART CROWSER
1910 FAIRVIEW AVENUE E
SEATTLE, WA 98102

RE: Your Reference: **UHINCK**

Enclosed is a copy of the Pacific Northwest Title Company's **SHORT PLAT CERTIFICATE** No. **32049471.** Please feel free to call the Title Department if you have any questions or information concerning this Preliminary Title Report. We appreciate this opportunity to be of service to you.

1/1

Pacific Northwest Title

9927 Mickelberry Road, N.W. · P.O. Box 3607
Silverdale, Washington 98383
(360) 692-4141 · Fax (360) 692-8001

SHORT PLAT CERTIFICATE

ATTN: ELIZABETH CROWSER
HEART CROWSER
1910 FAIRVIEW AVENUE E
SEATTLE, WA 98102

Charge:	$	290.00
Tax:	$	23.78
Total:	$	313.78

PROPOSED SHORT PLAT: 012301-4-022-1005

Order No.: 32049471

Gentlemen:

This is a Short Plat Certificate as of **July 1, 1999** at 8:00 a.m. for a plat of the following property:

THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 23 NORTH, RANGE 1 WEST, W.M., IN KITSAP COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:
COMMENCING AT THE INTERSECTION OF THE SOUTHEASTERLY MARGIN OF STATE HIGHWAY NO. 14, AS SAME EXISTED ON APRIL 12, 1957 AND THE NORTH LINE OF SAID NORTHEAST QUARTER OF THE SOUTHEAST QUARTER; THENCE SOUTHWESTERLY ALONG SAID SOUTHEASTERLY MARGIN 100.00 FEET; THENCE SOUTHEASTERLY AT RIGHT ANGLES, 35.0 FEET TO THE PRESENT RIGHT-OF-WAY LINE OF PRIMARY STATE HIGHWAY NO. 21; THENCE NORTHEASTERLY ALONG THE SAID PRESENT RIGHT-OF-WAY LINE 100.00 FEET TO A POINT CALLED "X" FOR THE PURPOSE OF THIS DESCRIPTION; THENCE SOUTHWESTERLY ALONG THE SOUTHEASTERLY RIGHT-OF-WAY OF SAID PRIMARY STATE HIGHWAY 790.0 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUE SOUTHWESTERLY ALONG SAID RIGHT-OF-WAY LINE TO THE WEST LINE OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 1; THENCE SOUTHERLY ALONG THE WEST LINE OF SAID NORTHEAST QUARTER OF THE SOUTHEAST QUARTER TO THE SOUTHWEST CORNER OF SAID NORTHEAST QUARTER OF THE SOUTHEAST QUARTER; THENCE EASTERLY ALONG THE SOUTH LINE OF SAID NORTHEAST QUARTER OF THE SOUTHEAST QUARTER TO A POINT WHICH RUNS SOUTHEASTERLY FROM THE POINT OF BEGINNING AND IS AT RIGHT ANGLES TO THE CENTERLINE OF SAID PRIMARY STATE HIGHWAY; THENCE NORTHWESTERLY ALONG SAID LINE TO THE TRUE POINT OF BEGINNING;

EXCEPT ANY PORTION OF SAID PRIMARY STATE HIGHWAY ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 1 WHICH MAY EXTEND INTO THE ABOVE DESCRIBED TRACT;

TOGETHER WITH A NON-EXCLUSIVE EASEMENT FOR INGRESS, EGRESS AND UTILITIES, OVER, UNDER AND ACROSS A STRIP OF LAND 60.0 FEET IN WIDTH, AND BEING CONTIGUOUS WITH AND LYING ON THE SOUTHWESTERLY SIDE OF THE FOLLOWING DESCRIBED LINE;

. . . THIS LEGAL DESCRIPTION CONTINUES ON THE NEXT PAGE . . .

BEGINNING AT THE ABOVE MENTIONED POINT "X"; THENCE SOUTHEASTERLY ON A LINE WHICH IS AT RIGHT ANGLES TO THE SOUTH EASTERLY RIGHT-OF-WAY LINE OF SAID PRIMARY STATE HIGHWAY 600.0 FEET; THENCE CONTINUE WITH SAID 60.0 FOOT WIDE EASEMENT BEING CONTIGUOUS WITH AND ON THE SOUTHEASTERLY SIDE OF A LINE WHICH IS PARALLEL WITH THE CENTERLINE OF SAID PRIMARY STATE HIGHWAY, 790.0 FEET TO THE NORTHEASTERLY LINE OF THE ABOVE DESCRIBED TRACT AND END OF SAID EASEMENT. THE ABOVE DESCRIBED 60.0 FOOT WIDE EASEMENT PROVIDED FOR BY INSTRUMENT RECORDED UNDER AUDITOR'S FILE NO. 883956.

This Company certifies that record title is vested in:

LUCILLE UHINCK, PRESUMPTIVELY SUBJECT TO THE COMMUNITY INTEREST OF HER SPOUSE, IF MARRIED TO OTHER THAN SID UHINCK, JR. BETWEEN FEBRUARY 15, 1980 AND OCTOBER 22, 1992, DATE OF ACQUIRING TITLE

Free from all liens, encumbrances and objections, except as follows:

1. Easement, and terms and conditions thereof, affecting a portion of said premises and for the purposes hereinafter stated, as disclosed by instrument recorded on JULY 30, 1964, under KITSAP County Auditor's File No. 826564.
   For: A WATER PIPE LINE

   NOTE: The description contained therein is insufficient to specifically locate said easement.

2. Easement, and terms and conditions thereof, affecting a portion of said premises and for the purposes hereinafter stated, as disclosed by instrument recorded on AUGUST 10, 1966, under KITSAP County Auditor's File No. 883956.
   For: INGRESS AND EGRESS AND FOR UTILITIES
   Affects: PORTION OF SAID PREMISES

3. Relinquishment of access to state highway and of light, view and air by deed to State of Washington:
   Recorded: SEPTEMBER 16, 1957
   Recording Number: 667755

   Except, as a part of the consideration for this transaction the grantee agrees to construct on its right of way a frontage road as shown on sheet 4 of 9 sheets of the above mentioned map of definite location, and to which frontage road only, the grantors their heirs, and assigns reserve a right of reasonable access, any approach to said frontage road to be maintained between the right of way line and the shoulder line of said frontage road by the grantors, their heirs, successors and assigns.

4. Delinquent General Taxes:

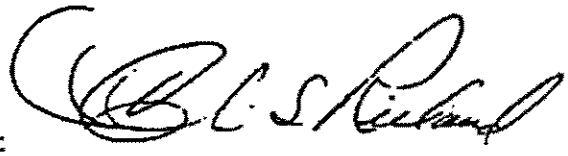
Year:	1997	1998	1999
Amount Billed:	$496.75	$391.31	$519.81
Amount Paid:	$-0-	$-0-	$-0-
Amount Due:	$496.75 plus interest	$391.31	$519.81
Tax Account Number:		012301-4-022-1005	
Levy Code:		8139	

5. Unrecorded Leasehold, if any; rights of vendors and holders of security interest on personal property installed upon said property and rights of tenants to remove trade fixtures at the expiration of the term.

6. Matters which may be disclosed by a search of the records against the name of the spouse of LUCILLE UHINCK, if married.

This Company further certifies that all taxes and assessments levied and chargeable have been fully paid except as noted.

PACIFIC NORTHWEST TITLE COMPANY OF KITSAP COUNTY, INC.

By: 

Authorized Signatory

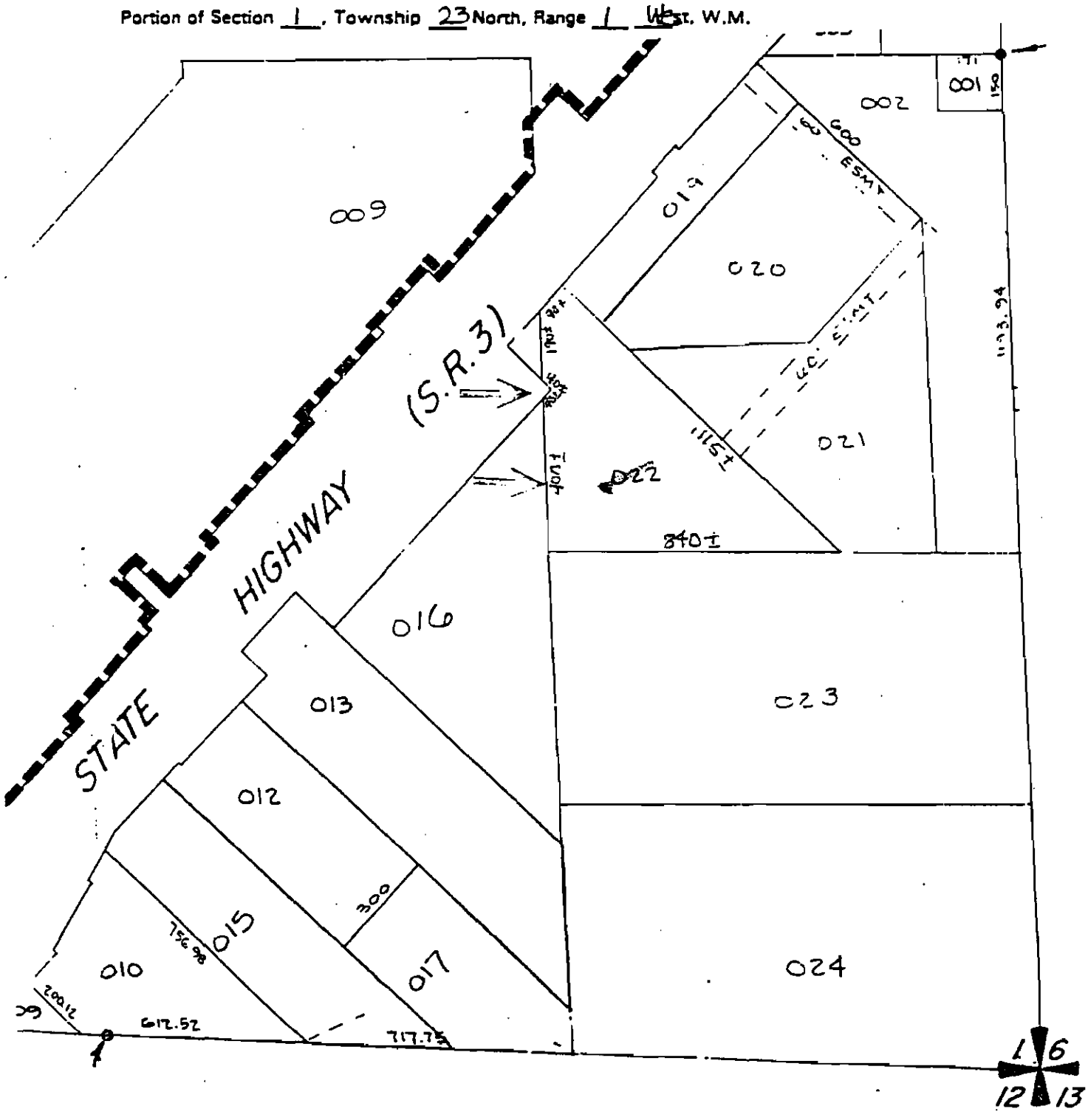
cc: BUSH, ROED AND HITCHINGS
Attn: DARRELL NANCE

PACIFIC NORTHWEST TITLE

ORDER NO. 32049471

IMPORTANT: This is not a Plat of Survey. It is furnished as a convenience to locate the land indicated hereon with reference to streets and other land. No liability is assumed by reason of reliance hereon.

Portion of Section 1, Township 23 North, Range 1 West, W.M.



SECURITY UNION
Title Insurance Company

THIS SPACE PROVIDED FOR RECORDER'S USE

Filed for Record at Request of Land Title Company
12648-jbe E-~~86597~~ 87891

When Recorded return to

NAME Lucille Uhinck

ADDRESS

CITY, STATE, ZIP

E-87891 2 **STATUTORY WARRANTY DEED**

THE GRANTOR EARL M. KING and LOIS J. KING, his wife

for and in consideration of FULFILLMENT OF REAL ESTATE CONTRACT #8003C60007

in hand paid, conveys and warrants to LUCILLE UHINCK, a single person

the following described real estate, situated in the County of KITSAP State of Washington:

THE LEGAL DESCRIPTION IS ATTACHED ON EXHIBIT "A" AND BECOMES A PART HEREOF.

NO. 1196
KITSAP COUNTY
TRANSACTION EXCISE TAX
dated on contract 3/5/80
PAID ~~OCT 22 1992~~
AMOUNT $ 334.95
COUNTY TREASURER
BY K. Thompson

KITSAP COUNTY
$9.00 LTC
FILED-BY: LAND TITLE COMPANY
OCT 22, 1992, 12:33 PM
KAREN FLYNN, AUDITOR
CLERK: GILMORE

A.F.#: 9210220176
REEL 0678 FR 1223

This deed is given in fulfillment of that certain real estate contract between the parties hereto, dated FEBRUARY 15 19 80, and conditioned for the conveyance of the above described property, and the covenants of warranty herein contained shall not apply to any title, interest or encumbrance arising by, through or under the purchaser in said contract, and shall not apply to any taxes, assessments or other charges levied, assessed or becoming due subsequent to the date of said contract.

Real Estate Sales Tax was paid on this sale on MARCH 6, 1980, Rec. No 1196

Dated October 16 19 92

EARL M. KING

LOIS J. KING

By

By

STATE OF WASHINGTON / Idaho
COUNTY OF Canyon } ss.

On this day personally appeared before me Earl M. King and Lois J. King

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 16th day of October, 19 92

Notary Public in and for the State of Washington, residing at Nampa Idaho

STATE OF WASHINGTON Idaho
COUNTY OF Canyon } ss.

On this 16th day of October, 19 92, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Earl M. King, Lois J King and to me known to be the President and Secretary, respectively, of the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year first above written.

Notary Public in and for the State of Washington, residing at

Stock No. WATL-0142 (7-86) LPB No. 11

AUDITORS NOTE
LEGIBILITY FOR RECORDING AND COPYING
UNSATISFACTORY IN A PORTION OF THIS
INSTRUMENT WHEN RECEIVED.

REEL #: 9210220176
0678 FR 1224

APPENDIX "A"

PARCEL "A"

That portion of the northeast quarter of the southeast quarter section 1, township 23 north, range 1 west, W.M., in Kitsap County, Washington, described as follows:

Beginning at intersection of the southeasterly margin of State Highway No. 14, as same extended on April 12, 1957, and the north line of said northeast quarter of the southeast quarter; thence southwesterly along said southeasterly margin 100.00 feet; thence southeasterly at right angles, 33 feet to present right of way line of Primary State Highway No. 21, said point being the true point of beginning; thence northeasterly along present right of way line of Primary Highway No. 21, 100 feet; thence southeasterly at right angles to centerline of said Primary State Highway 600 feet; thence southwesterly parallel to centerline of said Primary State Highway, 1200 feet, more or less, to south line of said northeast quarter of the southeast quarter; thence westerly along said south line, 145 feet, more or less, to southeasterly line of tract conveyed to Ames Auto Wrecking Co., Inc., by deed recorded July 16, 1964 under Auditor's File No. 826564; thence northeast along said southeasterly boundary 1079 feet, more or less, to the northeasterly corner of said Ames Tract; thence northwesterly along the northerly line thereof 281 feet; thence northeasterly along said tract 180 feet; thence northwesterly along said tract 215 feet to the southeasterly line of Primary State Highway, the true point of beginning.

PARCEL "B"

Portion of the northeast quarter of the southeast quarter, section 1, township 23 north, range 1 west, W.M., in Kitsap County, Washington, described as follows:

Beginning at the southwest corner of said northeast quarter of the southeast quarter; thence east along the south line thereof 190 feet, more or less, to the southeast corner of Parcel "A" above described the true point of beginning; thence continuing east along said south line 500 feet; thence north at right angles thereto to the southeasterly line of Parcel "A" above described; thence southwesterly along said southeasterly line to the true point of beginning;
TOGETHER WITH a 60 foot easement for ingress and egress and for utilities over a strip adjoining the northeasterly line of Parcel "A" and continuing 60 feet beyond to the southeast and over a strip 60 feet wide adjoining the southeasterly line of Parcel "A" to the east line of Parcel "B".

PARCEL "C"

That portion of the northeast quarter of the southeast quarter, section 1, township 23 north, range 1 west, W.M., in Kitsap County, Washington, described as follows:

Beginning at the intersection of the southeasterly margin of State Highway No. 14, as same existed on April 12, 1957 and the north line of said northeast quarter of the southeast quarter; thence southwesterly along said southeasterly margin 100.00 feet; thence southeasterly at right angles, 33 feet to present right of way line of Primary State Highway No. 21; thence northeasterly along present right of way line of Primary State Highway No. 21, 100 feet; thence southeasterly at right angles to centerline of said Primary State Highway, 600 feet to the true point of beginning; thence south parallel to the west line of said northeast quarter of the southeast quarter 870 feet, more or less, to the

REEL #0678 FR 1225

J-886-7
Page 3
Exhibit "A"

Continuation of Parcel "C"
south line of said northeast quarter of the southeast quarter; thence west along said south line thereof 200 feet, more or less, to the southeast corner of a tract deeded to K. R. Crawford and his wife by deed recorded August 10, 1966, under Auditor's File No. 883956; thence north along the east line of said Crawford Tract to a point on the southeasterly line of another tract deeded to K. R. Crawford and his wife by deed recorded August 10, 1966 under Auditor's File No. 883957; thence northeasterly along said southeasterly line to the true point of beginning.

PARCEL "D"

That portion of the northeast quarter of the southeast quarter, section 1, township 23 north, range 1 west, W.M., in Kitsap County, Washington, described as follows:
Beginning at the intersection of the southeasterly margin of State Highway No. 16 as same existed on April 12, 1957, and the north line of said northeast quarter of the southeast quarter; thence southwesterly along said southeasterly margin 100.00 feet; thence southeasterly at right angles, 15 feet to the present right of way line of Primary State Highway No. 21; said point being the true point of beginning of this description; thence continuing southeasterly at right angles to said highway, 215.00 feet; thence southwesterly parallel to the centerline of said Primary State Highway, 100.00 feet; thence southeasterly at right angles to said Highway 285.00 feet; thence southwesterly parallel to said highway 1070 feet, more or less, to the south line of said northeast quarter of the southeast quarter; thence west 10 feet, more or less, to the west line of the northeast quarter of the southeast quarter; thence north along the west line of said northeast quarter of the southeast quarter, 397.32 feet, to the southeasterly margin of said Primary State Highway, said point being measured 266 feet at right angles to the centerline of said Primary State Highway; thence northeasterly and northwesterly following the right of way line of said Primary State Highway to intersect the west line of the northeast quarter of the southeast quarter; thence north along said west line to the south margin of said highway; thence northeasterly following the right of way of said Primary State Highway No. 21, 771.00 feet, to the true point of beginning;
TOGETHER WITH easement for water pipeline as set forth in deed recorded under Auditor's File No. 822164, in Kitsap County, Washington.

8003060007

J-44477

WARRANTY DEED

NO. 51486
KITSAP COUNTY
TRANSACTION EXCISE TAX
JUL 30 1984
AMOUNT 100.00
COUNTY TREASURER
BY

THE GRANTORS, FLORA M. HOOPER, a widow, and [illegible] A. LUNDBERG, as her sole and separate property, for and in consideration of TEN THOUSAND DOLLARS ($10,000.00) in hand paid, convey and warrant to AMES AUTO WRECKING, INC., a Washington corporation, the following described real estate, situated in the County of Kitsap, State of Washington:

826564

That portion of the northeast quarter of the southeast quarter, section 1, Township 23 North, Range 1 West, W.M., in Kitsap County, Washington, described as follows:

Beginning at the intersection of the Southeasterly margin of State Highway No. 14 as same existed on April 12, 1957, and the North line of said Northeast quarter of the Southeast quarter; thence Southwesterly along said Southeasterly margin, 100.00 feet; thence southeasterly at right angles, 35 feet to the present right of way line of Primary State Highway No. 21; said point being the true point of beginning of this description; thence continuing Southeasterly at right angles to said Highway, 215.00 feet; thence Southwesterly parallel to the center line of said Primary State Highway, 100.00 feet; thence Southeasterly at right angles to said Highway 295.00 feet; thence Southwesterly parallel to said Highway 1070. feet, more or less, to the South line of said Northeast quarter of the Southeast quarter; thence West 60 feet, more or less, to the West line of the Northeast quarter of the Southeast quarter; thence North along the West line of said Northeast quarter of the Southeast quarter, 397.32 feet, to the Southeasterly margin of said Primary State Highway, said point being measured 260 feet at right angles to the center line of said Primary State Highway; thence Northeastly and Northwesterly following the right of way line of said Primary State Highway to intersect the West line of the Northeast quarter of the Southeast quarter; thence North along said West line to the South margin of said Highway; thence Northeasterly following the right of way of said Primary State Highway No. 21, 771.00 feet, to the true point of beginning.

Grantor, FLORA M. HOOPER, further grants and conveys herewith an easement to install and maintain a water pipe line to connect to the pipe lines of the Sunnyslope Water District over and across the most direct route following proposed street locations as designated by Seller. This easement shall be an easement to run with the land for the use and benefit of the Grantee, its successors and assigns as owner of the real estate conveyed herein and over and across the real estate of FLORA M. HOOPER, a widow, adjacent to the North of the real estate herein conveyed and being all lands of the said Grantor located in the East one-half of the Southeast Quarter and that portion of the Southeast Quarter of the Northeast Quarter of Section 1, Township 23, North, Range 1 West, W.M., lying Easterly of Primary State Highway.

7-30-84

Grantors further hereby approve the use of the real estate conveyed herein for an auto wrecking yard.

Flora M. Hooper

Emma A. Lundberg

STATE OF WASHINGTON)
) ss.
COUNTY OF KITSAP)

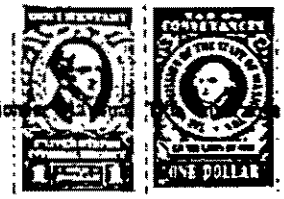
On this day personally appeared FLORA M. HOOPER and EMMA A. LUNDBERG, to me known to be the individuals described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 27 day of July, 1964.

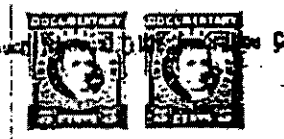
Notary Public in and for the State of Washington, residing at Bremerton

Filed for Record July 30, 1964 at 3 15 P. M.
Request of WASH. TITLE INS.CO. - KITSAP CO. OFFICE
MARGARET HUNTSINGER, Kitsap County Auditor

Statutory Warranty Deed



Pioneer National Title Insurance Company



Pioneer National Title Insurance Company

Washington Title Insurance Company
Seattle, Washington

Mail to Crawford, Brown & Gooding
Real Estate & Insurance
413 South Callahan, P.O. Box 1833
Bremerton, Washington

Send Tax Statement to

883150

NO. 6085
KITSAP COUNTY
TRANSACTION EXCISE TAX
PAID AUG 10 1966
AMOUNT 10.00
COUNTY TREASURER
By

Statutory Warranty Deed

THE GRANTOR Flora M. Hooper, a widow

for and in consideration of Ten and no/100 Dollars and other valuable considerations

in hand paid, conveys and warrants to E. T. CRAWFORD and CLARA D. CRAWFORD, husband and wife

the following described real estate, situated in the County of Kitsap, State of Washington:

Parcel (b)

Portion of the northeast quarter of the southeast quarter, section 1, township 23 north, range 1 west, W. M., in Kitsap County, Washington, described as follows:
Beginning at the southwest corner of said northeast quarter of the southeast quarter; thence east along the south line thereof 190 feet, more or less, to the southeast corner of parcel (a) above described the true point of beginning; thence continuing east along said south line 500 feet; thence north at right angles thereto to the southeasterly line of parcel (a) above described; thence southwesterly along said southeasterly line to the true point of beginning;
TOGETHER with a 60 foot easement for ingress and egress and for utilities over a strip adjoining the northeasterly line of parcel (a) and continuing 60 feet beyond to the southeast and over a strip 60 feet wide adjoining the southeasterly line of parcel (a) to the east line of parcel (b).

Dated this 20th day of June, 1966

X Flora M. Hooper (SEAL)

(SEAL)

STATE OF WASHINGTON,
County of Kitsap } ss.

On this day personally appeared before me Flora M. Hooper

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 20th day of June, 1966

Notary Public in and for the State of Washington, residing at Bremerton

Filed for Record Aug 10 1966 2 P.M.
Request of PIONEER NAT'L. TITLE INS. CO.
MARGARET McPHERSON, Kitsap Co. Auditor

667765 SEPTEMBER 16, 1957

Limited Access

WARRANTY DEED

In the Matter of PRIMARY *State Highway No. 2l, Lost Lake to Garrat*

KNOW ALL MEN BY THESE PRESENTS, That the Grantors
FLORA M. HOOPER, a widow, LOUIS M. HOOPER, as his separate estate, ~~ANNA~~ J.V. HOOPER, as his separate estate, EMMA A. LUNDBERG, as her separate estate, and BESSIE E. OLSEN, as her separate estate

for and in consideration of the sum of TEN and NO/100 ($10.00) ~~~~~~~~~~*Dollars, and other valuable consideration,*
hereby convey and warrant to the STATE OF WASHINGTON, *the following described real estate situated in* Kitsap *County, in the State of Washington:*

All that portion of the following described Parcels "A", "B", "C", "D", "E", and "F" lying Northwesterly of a line drawn parallel with and 85 feet Southeasterly, when measured at right angles, from the center line of Primary State Highway No. 2l, Lost Lake to Garret, as surveyed over and across said Parcels "A", "B", "C", "D", "E", and "F". EXCEPT that from Highway Engineer's Station 132+00 Southwesterly to Highway Engineer's Station 133+00 said parallel line shall be 75 feet Southeasterly from said center line, and EXCEPT that from Highway Engineer's Station 133+00 Southwesterly to the West line of said Parcel "B", said parallel line shall be 90 feet Southeasterly from said center line, and EXCEPT that from Highway Engineer's Station 134+00 Southwesterly to said West line, said parallel line shall be 250 feet Northwesterly from said center line.

PARCEL "A"

That portion of the South half of the Southeast Quarter of the Northeast Quarter, Section 1, Township 23 North, Range 1 West, W.M., in Kitsap County, Washington, lying Southeasterly of State Road No. 14; EXCEPT that portion of the East 5 acres of said South half of the Southeast Quarter of the Northeast Quarter lying Southerly of State Road No. 14; AND EXCEPT: Beginning 330 feet West of the East Quarter Corner of said section being the Southwest corner of the East 5 acres of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter; thence West 394.85 feet, more or less, to the Southeasterly margin of State Highway No. 14; thence Northeasterly along said Southeasterly margin 327.91 feet; thence Easterly at right angles to the West line of the East 5 acres of the said Southeast Quarter of the Southeast Quarter of the Northeast Quarter; thence South along said West line to the point of beginning.

PARCEL "B"

That portion of the Northeast Quarter of the Southeast Quarter, Section 1, Township 23 North, Range 1 West, W.M., in Kitsap County, Washington, lying Southeasterly of State Road No. 14; EXCEPT roads; AND EXCEPT the following: Beginning at the intersection of the Southeasterly margin of State Highway No. 14 and the North line of said subdivision; thence Southwesterly along said Southeasterly margin 300 feet; thence Southeasterly at right angles 150 feet; thence Northeasterly at right angles 300 feet; thence Northwesterly at right angles 150 feet to the point of beginning.

PARCEL "C"

That portion of the Southeast Quarter of the Northeast Quarter, Section 1, Township 23 North, Range 1 West, W.M., in Kitsap County, Washington, described as follows: Beginning 330 feet West of the East Quarter corner of said section, being the Southwest corner of the East 5 acres of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter; thence West 394.85 feet, more or less, to the Southeasterly margin of State Highway No. 14; thence Northeasterly along said Southeasterly margin 327.91 feet; thence Easterly at right angles to the West line of the East 5 acres of the said Southeast Quarter of the Southeast Quarter of the Northeast Quarters thence South along said West line to the point of beginning.

PARCEL "D"

That portion of the Northeast Quarter of the Southeast Quarter, Section 1, Township 23 North, Range 1 West, W.M., in Kitsap County, Washington, described as follows: Beginning at the intersection of the Southeasterly margin of State Highway No. 14 and the North line of said subdivision; thence Southwesterly along said Southeasterly margin 100 feet; thence Southeasterly at right angles 150 feet; thence Northeasterly at right angles 100 feet; thence Northwesterly at right angles 150 feet to the point of beginning.

SEPTEMBER 16, 1957

WARRANTY DEED

In the Matter of State Highway No.

KNOW ALL MEN BY THESE PRESENTS, That the Grantor

for and in consideration of the sum of Dollars,

hereby convey and warrant to the STATE OF WASHINGTON, the following described real estate situated in County, in the State of Washington:

PARCEL "B"

That portion of the Northeast Quarter of the Southeast Quarter, Section 1, Township 23 North, Range 1 West, W.M., in Kitsap County, Washington, described as follows: Beginning at the intersection of the Southeasterly margin of State Highway No. 16 and the North line of said subdivision; thence Southwesterly along said Southeasterly margin 100 feet to the point of beginning; thence Southwesterly along said Southeasterly margin 100 feet; thence Southeasterly at right angles 150 feet; thence Northeasterly at right angles 100 feet; thence Northwesterly at right angles 150 feet to the point of beginning.

PARCEL "D"

That portion of the Northeast Quarter of the Southeast Quarter, Section 1, Township 23 North, Range 1 West, W.M., in Kitsap County, Washington, described as follows: Beginning at the intersection of the Southeasterly margin of State Highway No. 16 and the North line of said subdivision; thence Southwesterly along said Southeasterly margin 200 feet to the point of beginning; thence Southwesterly along said Southeasterly margin 100 feet; thence Southeasterly at right angles 150 feet; thence Northeasterly at right angles 100 feet; thence Northwesterly at right angles 150 feet to the point of beginning.

The lands being conveyed herein contain an area of 0.95 acres, more or less, the specific details concerning all of which are to be found within that certain map of definite location now of record and on file in the office of the Director of Highways at Olympia and bearing date of approvalJuly 9, 1957, and the center line of which is also shown of record in Book "3" of Highway Plats, page 14, records of said county.

Also, the grantors herein convey and warrant to the State of Washington all rights of ingress and egress (including all existing, future or potential easements of access, light, view and air) to, from and between Primary State Highway No. 21, Lost Lake to Garet, and the remainder of said Parcels "A", "B", "C", "D", "E", and "F".

EXCEPT, as a part of the consideration for this transaction the grantee agrees to construct on its right of way a frontage road as shown on Sheet 4 of 9 Sheets of the above mentioned map of definite location, and to which frontage road only, the grantors their heirs, and assigns reserve a right of reasonable access, any APPROACH to said frontage road to be maintained between the right of way line and the shoulder line of said frontage road by the grantors, their heirs, successors and assigns.

It is expressly intended that these covenants, burdens and restrictions shall run with the land and shall forever bind the grantors, their heirs, successors or assigns.

The grantors herein agree to give full possession of the lands herein conveyed (including all improvements thereon) on or before November 1, 1957. It being understood and agreed that the State of Washington, its authorized agents or assigns, shall have the right to enter upon the remaining abutting lands of the grantors, where necessary to accomplish the removal of said improvements.

The undersigned Grantors hereby authorize and instruct the State of Washington to pay the entire consideration to Curtis H. Coons, as attorney and agent for the undersigned, and direct that the State voucher in payment thereof shall be executed only by said Curtis H. Coons.

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APPENDIX B
FIELD METHODS AND DATA

This appendix summarizes field activities conducted as part of the site hazard assessment for the Gorst Landfill located near Gorst, Washington. The following field activities are discussed in this appendix:

- Surface Soil Sampling;
- Surface Water and Freshwater Sediment Sampling;
- Groundwater Sampling;
- Equipment Decontamination;
- Sample Labeling and Handling; and
- Investigation-Derived Waste Disposal.

Tables B-1 through B-4 provided at the end of this appendix summarizes field data and observations obtained during sampling, including sample IDs, collection date, air monitoring data, depth of sample, soil types, and other documented field measurements.

Surface Soil Sampling

Surface soil samples were collected from ravine walls and from the north face of the landfill mass. To determine if landfill activities had adversely impacted surrounding surface soil samples, three discrete samples were collected from ravine walls immediately downstream of the landfill mass. In addition, one background surface soil sample was collected from the ravine wall upgradient of the landfill mass. Composite surface soil samples were also collected from the three horizontal zones of the north landfill face, to characterize the top, middle, and bottom areas. A field duplicate sample was split from one of the composite samples, and was sent to the laboratory as a blind duplicate. The locations of surface soil samples are indicated on Figure 4.

Surface soil samples were collected from a depth of 0 to 0.5 foot below grade using a stainless steel spoon. After recovering a sample, the Hart Crowser field representative visually classified the soil sampled in accordance with ASTM D 2488. Soil samples were immediately processed to minimize disturbance of the sample and to protect the integrity of any volatile components present. Prior to homogenization, an aliquot was placed in a sample container for analysis of volatile compounds. The remaining soil volume was placed into appropriate pre-cleaned sample jars provided by the contract laboratory. Soil samples were monitored using a MultiRae PID to detect volatile compounds.

Surface Water and Freshwater Sediment Sampling

Surface water and freshwater sediment samples were collected during a sustained rain event, which provided ample stream flow for sampling.

Collocated Surface Water and Freshwater Sediment Sampling. Two collocated surface water and freshwater sediment samples (combined SW-/SED- locations on Figure 4) were collected from areas of active sediment deposition in shallow water locations of Gorst Creek. One background collocated sample (GL-SED-01/GL-SW-01) was collected upstream of the landfill mass, and the other collocated sample (GL-SED-03/GL-SW-02) was collected downstream. Each sediment sample consists of a 5-point composite of the upper 0.2 foot of sediment. Two additional sediment samples (GL-SED-02 and GL-SED-04) were collected from downstream locations indicated on Figure 4, without collocated surface water samples.

Surface Water Sampling Procedures. Surface water samples were collected prior to sediment collection to minimize resuspension of sediments during sampling. A minimum length of polyethylene tubing was attached to an unpainted, untreated wooden pole. The sample was collected from the center point of the freshwater sediment sample location. The pole was lowered into the water column without disturbing bottom sediment, and pre-cleaned sample bottles were directly filled using a low flow (approximately 100 ml/min) peristaltic pump. Samples submitted for dissolved metals were filtered using a 0.45 µm in-line filter during the sampling procedure.

Freshwater Sediment Sampling Procedures. Freshwater sediment samples from depositional areas (collocated with surface water samples, where applicable) consist of a 5-point composite–a center point and four radial locations in a square approximately 1 foot from the center. After the surface water sample was collected, the center sediment sub-sample was collected from a depth of 0 to 0.2 foot below sediment grade using a stainless steel spoon. Sub-samples also from a depth of 0 to 0.2 foot were then collected from the outer four locations.

The samples for volatiles analysis were collected from the center location and were containerized immediately. For the remaining samples, the five sub-samples for each sample location were homogenized, and the composited sediment sample placed into appropriate pre-cleaned sample jars.

Groundwater Sampling

Hart Crowser measured, surveyed, and collected one sample (GL-GW-BR-11) from the Bremerton Water District (BWD) monitoring well BR-11, located

approximately 600 feet downgradient and cross-gradient of the landfill. One duplicate groundwater sample (GL-GW-BR-12) was also collected for quality control purposes and was sent to the laboratory as a blind duplicate.

Depth to water was recorded using an electronic water level probe, and water level was referenced to the top of the well casing. Groundwater purging and sampling were completed using a Grundfos pump, with the end of the tubing placed at the approximate middle of the well screen.

Prior to sampling, approximately three well casing volumes of groundwater were purged from the well at low flow rates of less than 0.5 liter/min to obtain representative formation water while minimizing turbidity. Samples for dissolved metal analysis were filtered using an in-line 0.45-micron filter during the sampling procedure.

Equipment Decontamination

Non-dedicated sampling equipment was cleaned between samples using the following steps:

- Scrubbing with brushes using an Alconox cleaning solution;
- Rinsing with potable water; and
- Rinsing with distilled/deionized water.

Sample Labeling and Handling

Sample containers were labeled at the time of sampling clearly identifying the project name, sampler's initials, sample number, analysis to be performed, date, and time. Nomenclature used for designating samples consists of an identifier for the Gorst Landfill site (GL), the sample type (SS for surface soils, SW for surface water, SED for freshwater sediment, and GW for groundwater from well), and the sample location (sequential number for composite samples).

Two blind field duplicate samples, one of surface soil and one of groundwater, were collected and analyzed for quality control purposes. The field duplicate samples were analyzed for the chemical analyses listed for that media (soil or groundwater). Additionally, one trip blank (labeled GL-TB-01) was prepared with the shipment of groundwater samples submitted to the contract laboratory and was analyzed for VOCs.

Upon collection, samples were placed in a cooler maintained at a temperature of approximately 4° C using "Blue Ice." Chain of Custody and field log forms were completed.

The following procedure for sample shipment were followed:

- Sample containers were placed in individual, sealed plastic bags;
- Inert cushioning material was placed on the bottom of the cooler. Bottles were then placed upright in the cooler in such a way to minimize movement during transit;
- Additional inert packing materials were added to partially cover sample containers. The blue ice was placed around, among, and on top of the sample containers;
- The remaining space in the cooler was filled with cushioning material; and
- The custody record was placed in a water-proof bag and taped inside the lid of the cooler.
- The lid of the cooler was secured by taping and sealing with a custody seal. A completed shipping label was attached to the top of the cooler.

Investigation-Derived Waste (IDW) Disposal

Soil disturbed during sample collection was returned to location of collection (i.e., sample hole). Sampling equipment was decontaminated at each sampling location prior to initiating activities at the next sampling location. Disturbed sediment and surface water were returned to the site of sampling in the creek. With the approval of the BWD, purge water generated during groundwater sampling was disposed of at the well site.

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Table B - Field Measurements and Observations
Gorst Landfill
Gorst, Washington

Table B1 - Surface Soil Samples

Sample ID	Sample Date	Sample Type	PID Reading	Sample Depth (feet)	Soil Classification
GL-SS-01	01/10/00	Surface Soil	0	0 to 0.5	Moist brown slightly silty gravelly sand with abundant fine organics
GL-SS-02	01/10/00	Surface Soil	0	0 to 0.5	Moist brown slightly silty, very gravelly sand
GL-SS-03	01/10/00	Surface Soil	0	0 to 0.5	Moist brown slightly silty, gravelly sand
GL-SS-04	01/10/00	Surface Soil	0	0 to 0.5	Moist brown gravelly fine to medium sand
GL-SS-05	01/10/00	Surface Soil, Composite	0	0 to 0.5	Moist brown very gravelly fine to medium sand with debris
GL-SS-06	01/10/00	Surface Soil, Composite	0	0 to 0.5	Moist brown silty, gravelly fine to medium sand with debris
GL-SS-07	01/10/00	Surface Soil, Composite	0	0 to 0.5	Moist brown silty, gravelly fine to medium sand with debris
GL-SS-08	01/10/00	Field Duplicate (GL-SS-07)	0	0 to 0.5	Moist brown silty, gravelly fine to medium sand with debris

Table B - Field Measurements and Observations
Gorst Landfill
Gorst, Washington

Table B2 - Freshwater Sediments

Sample ID	Sample Date	Sample Type	PID Reading	Sediment Sample Depth (feet)	Soil Classification
GL-SED-01	01/10/00	Freshwater Sediment, Composite	NA	0 to 0.2	Sand
GL-SED-02	01/11/00	Freshwater Sediment, Composite	NA	0 to 0.2	Silty, gravelly sand
GL-SED-03	01/11/00	Freshwater Sediment, Composite	NA	0 to 0.2	Gravelly sand
GL-SED-04	01/11/00	Freshwater Sediment, Composite	NA	0 to 0.2	Very gravelly sand

Table B3 - Groundwater Samples

Sample ID	Sample Date	Sample Type	Depth to Groundwater (feet)	Depth to Sediment (feet)	Purge Volume (gallons)	Temp (celsius)	pH
GL-GW-BR11	01/14/00	Groundwater	57.57	73.7	8	9	7.0
GL-GW-BR12	01/14/00	Field Duplicate (GL-GW-BR11)	57.57	73.7	8	9	7.0

Table B4 - Surface Water Samples

Sample ID	Sample Date	Sample Type	Water Sample Depth (feet)	Temp (celsius)	pH [a]	Dissolved Oxygen	Cond. (uS)
GL-SW-01	01/10/00	Surface Water	0.29	3.7	9.9	11.26	25.5
GL-SW-02	01/11/00	Surface Water	0.58	3.5	9.0	10.75	36.8

[a] Surface Water pH exceeds Water Quality Standards for Surface Waters of The State of Washington (WAC 173-201A).

APPENDIX C
CHEMICAL QUALITY DATA REVIEW AND CERTIFICATES OF ANALYSIS

Chemical Data Quality Review – Soil and Freshwater Sediments

Eight soil and four freshwater sediment samples were collected from the Gorst Landfill Site. These samples were submitted to MultiChem Analytical Services, of Renton, Washington for analysis of the following:

- NWTPH-Gasoline;
- NWTPH-Diesel;
- Volatile Organic Compounds (VOCs, CLP SOW OLMO3.2);
- Semivolatile Organic Compounds (SVOCs, CLP SOW OLM3.0);
- Pesticide/PCBs (EPA Method 8081/8082);
- Total Metals (EPA Method 6000/7000 Series);
- TCLP Metals(EPA Method 1311/6000/7000); and
- Total Organic Carbon (TOC, EPA Method 9060M).

The reported results and the associated quality assurance sample results were reviewed. The following criteria were evaluated in the standard validation process:

- Holding Times;
- Method Blanks;
- Surrogate Recoveries;
- Blank Spike and Laboratory Control Sample Recoveries;
- Matrix Spike/Matrix Spike Duplicate(MS/MSD) Recoveries and Relative Percent Differences (RPD);
- Laboratory Duplicate Relative Percent Differences (RPDs); and
- Reported Detection Limits.

NWTPH-G/Dx

No problems were encountered.

VOCs

Methylene chloride was detected below the reporting limit in method blank. Associated sample results were qualified as not detected (U). MS/MSD RPDs for 1,1-dichloroethene, toluene, and chlorobenzene were above laboratory control limits. No qualifiers were assigned since remaining RPDs were acceptable.

SVOCs

Bis(2-ethylhexyl)phthalate was detected below the reporting limit in the method blank. Sample results were qualified as not detected (U). Surrogate recoveries of nitrobenzene, 2-fluorophenol, and 1,2-dichlorobenzene were below laboratory control limits in sample GL-SED-03. No qualifiers were assigned since remaining recoveries were acceptable. MS/MSD RPD for pentachlorophenol was above control limits. No qualifiers were assigned since MS and MSD recoveries were acceptable.

PCBs/Pesticides

Several sample results were qualified "P" by the laboratory, indicating the calibration percent difference was greater than 25 percent. The results were qualified as estimated (J). Surrogate recoveries of decachlorobiphenol were slightly below laboratory control limits in GL-SS-02, GL-SS-03, GL-SS-04, and GL-SED-02. No qualifiers were assigned since remaining recoveries were acceptable. MS/MSD RPD was above control limits. No qualifiers were assigned since remaining RPDs were acceptable.

Total Metals

MS recovery of selenium was below laboratory control limits. Sample results were qualified as estimated (UJ/J).

TCLP Metals

Copper and zinc were detected in the TCLP method blank. Sample results less than five times the blank concentration were qualified as not detected (U).

TOC

No problems were encountered.

The soil freshwater sediment analytical data, as qualified, are acceptable for use.

Chemical Data Quality Review – Groundwater

Two groundwater samples (GL-GW-BR-11 and GL-GW-BR-12) were collected from Bremerton Water District groundwater monitoring well BR-11 downgradient of the Gorst Landfill Site. These samples were submitted to MultiChem Analytical Services, of Renton, Washington for the analysis of the following:

- Volatile Organic Compounds (VOCs, CLP SOW OLMO3.2);
- Semivolatile Organic Compounds (SVOCs, CLP SOW OLM3.0);
- PCBs (EPA Method 8082);
- Total and Dissolved Metals (EPA Method 6000/7000 Series); and
- Total Suspended Solids (TSS, EPA Method 160.2).

The reported results and the associated quality assurance sample results were reviewed. The following criteria were evaluated in the standard validation process:

- Holding Times;
- Method Blanks;
- Surrogate Recoveries;
- Blank Spike and Laboratory Control Sample Recoveries;
- Matrix Spike/Matrix Spike Duplicate(MS/MSD) Recoveries and Relative Percent Differences (RPD);
- Laboratory Duplicate Relative Percent Differences (RPDs); and
- Reported Detection Limits.

VOCs

No problems were encountered.

SVOCs

Bis(2-ethylhexyl)phthalate was detected below the reporting limit in the method blank. Both sample results were qualified as not detected (U). MSD recovery of 4-nitrophenol and MS/MSD RPD of nitroso-di-n-propylamine were above laboratory control limits. No qualifiers were assigned since remaining recoveries were acceptable.

PCBs

No problems were encountered.

Total and Dissolved Metals

No problems were encountered.

TSS

No problems were encountered.

The groundwater sample analytical data, as qualified, are acceptable for use.

Chemical Data Quality Review – Surface Water

Two surface water samples (GL-SW-01 and GL-SW-02) were collected from upgradient and downgradient surface waters near the Gorst Landfill Site. In addition one trip blank was prepared by the laboratory _____ and maintained with field sampler control submittal. These samples were submitted to MultiChem Analytical Services, of Renton, Washington for the analysis of the following:

- Volatile Organic Compounds (VOCs, CLP SOW OLMO3.2);
- Semivolatile Organic Compounds (SVOCs, CLP SOW OLM3.0);
- PCBs (EPA Method 8082);
- Total and Dissolved Metals (EPA Method 6000/7000 Series);
- Alkalinity (EPA Method 310.1);
- Chloride and Sulfate (EPA Method 300.0);
- Hardness;
- Ca, Fe, Mn, K, and Na;
- Nitrate as Nitrogen (EPA Method 353.3); and
- Total Suspended Solids (TSS, EPA Method 160.2).

The reported results and the associated quality assurance sample results were reviewed. The following criteria were evaluated in the standard validation process:

- Holding Times;
- Method Blanks;
- Surrogate Recoveries;
- Blank Spike and Laboratory Control Sample Recoveries;
- Matrix Spike/Matrix Spike Duplicate(MS/MSD) Recoveries and Relative Percent Differences (RPD);
- Laboratory Duplicate Relative Percent Differences (RPDs); and
- Reported Detection Limits.

VOCs

Methylene chloride was detected below the reporting limit in the method blank. Associated sample results were qualified as not detected (U).

SVOCs

Bis(2-ethylhexyl)phthalate was detected below the reporting limit in the method blank. Associated sample results were qualified as not detected (U). MSD recovery of 4-nitrophenol and MS/MSD RPD of nitroso-di-n-propylamine were above laboratory control limits. No qualifiers were assigned since remaining recoveries were acceptable.

PCBs

Surrogate recoveries of tetrachloro-m-xylene were below laboratory control limits in both samples. No qualifiers were assigned since remaining recoveries were acceptable.

Total and Dissolved Metals

No problems were encountered.

Alkalinity

No problems were encountered.

Ions

No problems were encountered.

TSS

No problems were encountered.

The surface water sample analytical data, as qualified, are acceptable for use.

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